Social Sciences: Geography Grade 5

By:
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C O N N E X I O N S

Rice University, Houston, Texas

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Collection structure revised: September 23, 2009
PDF generated: February 5, 2011
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Chapter 1

Term 1

1.1 Mapwork and map symbols[1]

1.1.1 GEORAPHY

1.1.2 Grade 5

1.1.3 MAPWORK

1.1.4 Module 1

1.1.5 MAPS AND MAP SYMBOLS

What is a symbol?

Road signs are also pictures of objects. We call them SYMBOLS. A map is actually also a picture that you see far below you if you look at the ground from high up in the air.

Over many years people who draw maps have designed symbols for each separate object. These symbols are recognised by everybody and therefore have the same meaning for everybody, otherwise nobody will understand what is drawn on a map.

These recognised symbols are pictured at the bottom of a map and are called the KEY to that map.

Activity 1:

To identify the position of places on a map

[LO 1.4]

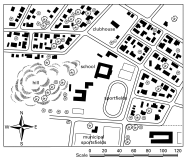

Figure 1.1

Suppose you are at Tom's school. In what direction does the following lie?

---

[1] This content is available online at <http://cnx.org/content/m29677/1.1/>.

- the hill
- the municipal sports fields
- the sports stadium
- the clubhouse Your teacher will now give you a map of your own town with your school at the centre, like in TOM's town plan. Examples of such town plans can usually be obtained from the town's municipality, tourist bureau or petrol stations.
-

Activity 2:

To draw a simple sketch plan

[LO 1.4]

Use the knowledge you have acquired so far and draw a simple sketch plan of how you must walk/ride from school to your friend's house.

Remember:

- use map symbols with a distinct key;
- indicate street names where familiar;
- your plan must have a prominent caption;

indicate the route in red.

1.1.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

- with guidance, selects and uses sources of useful geographical information (including graphs, maps and fieldwork outside the classroom) [finds sources];

- categorises information [works with sources];
- draws sketch maps and/or plans from field observation and measurements [works with sources];
- uses an index to find places on global atlas maps [works with sources];

- demonstrates knowledge and understanding of the issue through projects, discussion, debate and charts [communicates the answer].

1.1.7 Memorandum

1.1.7.1 Activity 1

- W/SW
- S
- SO
- N

1.2 Important physical features of a map[2]

1.2.1 GEOGRAPHY

1.2.2 Grade 5

1.2.3 MAP WORK

1.2.4 Module 2

1.2.5 IMPORTANT PHYSICAL FEATURES ON A MAP

ACTIVITY 1:

TO IDENTIFY IMPORTANT PHYSICAL FEATURES ON A MAP

[LO 2.1]

Study the map of the Cape Peninsula area below and then answer the questions that follow.

Provide a symbol key for this map below the map.

The Cape Peninsula Area

Du ToitskloofDiep River

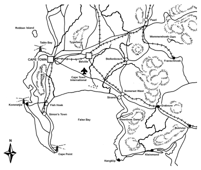

Figure 1.2

- Write down the names of two rivers.
- What island is found off Cape Town?
- For what was the island particularly known?
- In what mountain range is the Steenbras Dam located?
- Colour the rivers, dams and the sea blue.
- In what direction does a passenger travelling from Cape Town to Fish Hoek by train, move?
- How many possible routes are there for a motorist who wants to travel from Stellenbosch to Paarl?
- What is the southern most point on the map?

---

[2] This content is available online at <http://cnx.org/content/m29671/1.1/>.

- In what direction does Kleinmond lie from Bellville?

If you live in another region, your teacher will give you a map of that region. Similar questions will then be asked about your own region.

- Until now we have worked with a few very simple sketch maps. It is not difficult to draw such maps, because they are of a small, well-known area. If a map of a large area has to be drawn, it becomes difficult.
- The most valuable book and aid that you MUST have for Geography is an ATLAS. According to the dictionary an atlas is a collection of geographical maps in the form of a book.

ACTIVITY 2:
TO IDENTIFY IMPORTANT PHYSICAL FEATURES ON A MAP
[LO 2.1]

Your teacher will now hand out atlases and ask you to open them at the page with a map of the RSA. Using all your knowledge, answer the following questions and complete the accompanying map of the RSA:

- How many provinces are there in the RSA?
- Find the province in which you live and draw the borders in red.
- Use the correct map symbols to indicate the capital city of your province on your map. Write the name of the capital on your map.
- Can the GAUTENG province have a port?

- Give a reason for your answer:

- Give the names of two provinces that do not lie along the coast.

and

- Write the names of the most important ports in the RSA on your map.
- Colour the sea blue.
- Write the names of the two oceans along the RSA coast on your map.
- Find the Gariep (formerly known as the Orange River) on your atlas map and answer the following questions:

- Where does the Gariep originate?
- In what direction does the Gariep flow?
- In what ocean does the Gariep discharge?
- Name the two most important branches of the Gariep.
and
- With what neighbouring countries does the Gariep River form a border?
and

- Draw the following rivers in blue on your map:

Limpopo; Fish; Tugela.

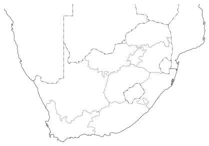

Figure 1.3

1.2.6 Assessment

LO 2

GEOGRAPHICAL KNOWLEDGE AND UNDERSTANDING

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

We know this when the learner:

2.1 identifies and describes major physical features of South Africa, including those of the home province [people and places];

2.2 identifies links between natural resources and economic activities in South Africa [people and resources];

2.3 describes ways in which the physical environment influences human activity and how human activity is influenced by the physical environment [people and the environment].

1.2.7 Memorandum

ACTIVITY 1

- Diep River, Eerste River
- Robben Island
- Jail
- Hottentots-Holland Mountains
- S
- 2 (shorter routes)
- Hangklip
- SE

ACTIVITY 2

- 9
- N
- No coastline
- Free State and Gauteng
- Drakensberg Mountains
- W
- Atlantic
- Vaal and Modder
- Lesotho and Namibia

1.3 News items and a map index[3]

1.3.1 GEOGRAPHY

1.3.2 Grade 5

1.3.3 MAP WORK

1.3.4 Module 3

1.3.5 NEWS ITEMS AND A MAP INDEX

ACTIVITY 1:

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[3] This content is available online at <http://cnx.org/content/m29673/1.1/>.

TO COLLECT GEOGRAPHICAL NEWS ITEMS

[LO 1.1]

Regularly collect geographical newspaper reports and indicate the place under discussion on a wall-chart of the world.

Regularly collect geographical newspaper reports and indicate the place under discussion on a wall-chart of the world.

Sometimes it is difficult to find places on a map. Valuable time is wasted. There is an easier way to find a place on a map – the map index.

It is an alphabetical list of places found at the back of any atlas. It contains the names of all the places in the atlas. Each entry indicates the country or region in which the name is located.

Then follows the page number of the most appropriate page on which the name appears – generally the largest scale map.

Lastly the longitude and latitude is given (will be done in Grade 7).

A list of abbreviations is explained at the end of the index.

Study the following examples and look them up in the index of your atlas:

Town	Country	Page	Latitude	Longitude
Bloemfontein	RSA	10	27,35 S	25,48 E
Dundee	RSA	9	28,09 S	31,14 E
Glenwood	RSA	14	29,52 S	31,00 E

Table 1.1

Please note that page numbers are different in different atlases.

ACTIVITY 2:

USING AN INDEX TO FIND A PLACE

[LO 1.5]

Look up the index references of the following places in your atlas.

1. Piketberg
2. Hermanus
3. Klerksdorp
4. Richards Bay
5. Welkom

1.3.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information (including graphs, maps and fieldwork outside the classroom) [finds sources];

1.2 categorises information [works with sources];

1.3 draws sketch maps and/or plans from field observation and measurements [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.5 demonstrates knowledge and understanding of the issue through projects, discussion, debate and charts [communicates the answer].

1.3.7 Memorandum

Class activities

1.4 Different kinds of maps[4]

GEOGRAPHY

Grade 5

MAP WORK

Module 4

DIFFERENT KINDS OF MAPS

1. Different kinds of maps

Every map tells its own story. Work in a group and look in the atlas for examples of the following kinds of maps:

political maps;
relief maps;
climatic maps;
vegetation maps;
population maps.

ACTIVITY:

SELECTING USEFUL INFORMATION AND USING IT

[LO 1.3]

Choose from the following options to complete the second column so the right kind of map is indicated:

Kind of map	What story does it tell?	Possible options
Political maps		show countries' borders
Relief maps		where people live
Climatic maps		mountains, valleys in an area
Vegetation maps		the weather in an area
Population maps		the plants in an area

Table 1.2

2. Use of colour on a map

A relief map indicates the different altitudes of regions. Regions with approximately the same altitude are indicated in the same colour. According to this physical relief of a country certain regions are also identified. We can therefore identify plains, mountains, rivers, swamps, dams, plateaux, etc.:

An explanation of a few:

COASTAL PLAIN - low-lying stretch of land close to the sea
PLATEAU - a reasonably flat landscape located high above sea level in the interior
PLAIN - flat, even stretch of land
MOUNTAINS - high-lying – a series of mountains are called a mountain range

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[4] This content is available online at <http://cnx.org/content/m29680/1.1/>.

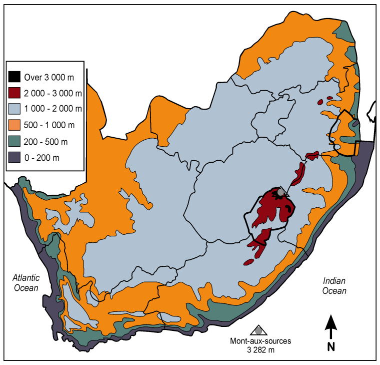

Figure 1.4

Observe the key that indicates specific altitudes. (The colours in brackets are simply an indication of the colour most widely used in atlases for regions of that particular altitude.)

If you look at a cross-section of South Africa, the profile will indicate the coastal plain on the western side that builds up to the plateau in the central region of the country, and then gradually descends down to the coastal plain on the east:

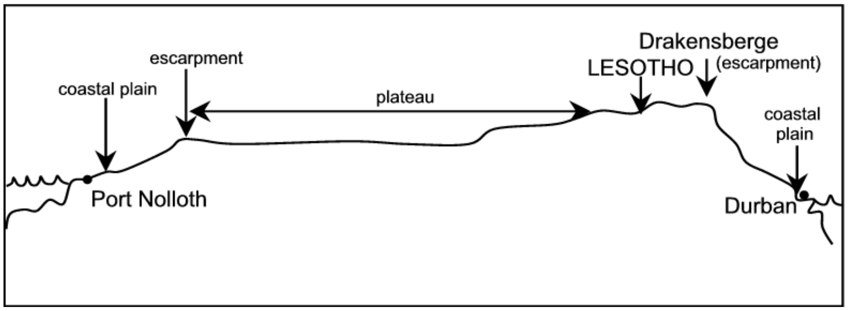

Figure 1.5

3. How do we use maps?

To use a map well, you must understand the following:

The heading or title

A map's heading should always indicate the specific kind of information it contains. Look at any map in your atlas and you will see that it has a name at the top, e.g. AFRICA Political.

Direction

You must know which side of the map points NORTH. If you turn your map so that it points to true north, you have orientated your map. Remember that word?

If you don't have a compass, there are a few ways to determine where TRUE north is:

By using your watch if it has an hour and minute hand.

The shadow stick method, by finding the shortest shadow during the day.

By doing a simple calculation at night by means of the constellation called the Southern Cross.

The easiest way is to determine where the sun rises and sets. The sun sets in the west and rises in the east. If you know where east and west are, it's easy to find the others.

Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

with guidance, selects and uses sources of useful geographical information (including graphs, maps and fieldwork outside the classroom) [finds sources];

categorises information [works with sources];

draws sketch maps and/or plans from field observation and measurements [works with sources];

uses an index to find places on global atlas maps [works with sources];

demonstrates knowledge and understanding of the issue through projects, discussion, debate and charts [communicates the answer].

Figure 1.6

1.5 Direction[5]

1.5.1 GEOGRAPHY

1.5.2 Grade 5

1.5.3 MAP WORK

1.5.4 Module 5

1.5.5 HOW TO DETERMINE DIRECTION

ACTIVITY 1:

TO DETERMINE NORTH BY USING A WRISTWATCH

[LO 1.7]

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[5] This content is available online at <http://cnx.org/content/m29676/1.1/>.

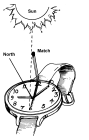

Figure 1.7

You need the following:
a watch with hands
a match or stick
Follow these steps:
Step 1: Stand outside on a sunny day. Hold your watch horizontally (flat) on your hand.
Step 2: Hold the stick above the 12 on the watch.
Step 3: Move around until the shadow of the stick falls on the 6 to 12 line.
Step 4: Halve the angle between the hour hand and the 6 to 12 shadow line. The halve line is **North**.
ACTIVITY 2:
TO DETERMINE NORTH BY USING A SHADOW STICK
[LO 1.7]

Divide the class into groups. Choose a sunny day. This method requires a few hours, because the sun has to rise to its highest point and then go down again.

You need the following:
a ruler
a pencil
a large piece of white paper
a knitting-needle or straight stick

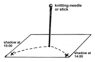

Figure 1.8

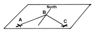

Figure 1.9

Follow these steps:
Step 1: Put the paper on level ground and push the knitting-needle through its centre.
Step 2: At 10:00, indicate the point of the shadow on the paper.

Step 3: At 14:00, indicate the point of the shadow on the paper.

Step 4: Now remove the paper and return to the classroom. Draw lines from the shadow point you have marked, to the point where the needle was. *(See Figure 5.)*

Step 5: Halve the angle formed by ABC. The line on the opposite side of the shadow will be TRUE NORTH.

ACTIVITY 3:

TO DETERMINE DIRECTION AT NIGHT WITHOUT A COMPASS

[LO 1.7]

Do some *research* to find out how you would orientate yourself at night without a compass (in other words, how you would determine true north at night).

Make drawings and write down your information, so you can report your findings to the class.

In the library, find at least two sources with information about your subject.

Read the first source and write down the information under SOURCE 1.

Then read the next source and write down the information that wasn't given in the first source, under SOURCE 2.

Use the information from both sources to write a paragraph or two.

1.5.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

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- demonstrates knowledge and understanding of the issue through projects, discussion, debate and charts [communicates the answer].

1.6 Scale and distance calculations[6]

GEOGRAPHY

Grade 5

MAP WORK

Module 6

SCALE AND DISTANCE CALCULATIONS

1. Scale and distance calculations

When you draw a plan or map of a room, the sheet of paper can't be as big as the room. You must REDUCE the room on paper. To do that, you have to use a SCALE. Let's take a look at Tom's living room, and compare it with a plan or map of the same living room.

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[6] This content is available online at <http://cnx.org/content/m29682/1.1/>.

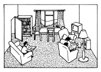

Figure 1.10

Tom's living room

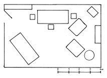

Figure 1.11

Map of Tom's living room

In this map of Tom's living room a line scale is used.

It means that on this map of Tom's living room, one centimetre on the map is equal to one metre in real life.

The scales of different maps vary.

2. How to calculate distance with a line scale

You measure the distance between two places accurately with a ruler or callipers on the map.

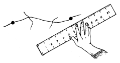

Figure 1.12

Then measure it directly on the line scale.

ACTIVITY:

TO USE A LINE SCALE

[LO 1.1]

1. What is the actual length of Tom's sofa? m.

2. Study your atlas and then do the following distance calculations according to the line scale. (Measure as the crow flies – straight.)

How far is it from your town to the mouth of the Gariep River?

What is the distance from your town to Johannesburg?

Find Durban on the map. Suppose you live there and want to go to the following places: Pretoria, Cape Town, Bloemfontein

How many kilometres will you travel to each of them?

In which direction will you travel to each of them?

Fill in your answers in the open spaces.

	Distance in kilometres	Direction in which you're moving
Pretoria		
Cape Town		
Bloemfontein		

Table 1.3

3. Ratio Scales

You also find RATIO SCALES on maps, e.g. 1 : 100 000. This means that the area on land is 100 000 times bigger than on the map. If you want to measure how far two places are from each other, you must do a calculation.

For example: Two places are 2 centimetres apart on a 1:50 000 map.

So 2 x 50 000 = 100 000 cm

= 1 km

Such a calculation can be difficult. So for our ends you'll use the line scale for now.

IMPORTANT FACT!

Map scales help you to determine how far one place is from another.

Assessment

LO 1

GEOGRAPHICAL ENQUIRY

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We know this when the learner:

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categorises information [works with sources];

draws sketch maps and/or plans from field observation and measurements [works with sources];

uses an index to find places on global atlas maps [works with sources];

demonstrates knowledge and understanding of the issue through projects, discussion, debate and charts [communicates the answer].

Memorandum

3 m

	Distance in kilometres	Direction in which you're moving
Pretoria	±500 km	NW
Cape Town	1 300 km	SW
Bloemfontein	±460 km	W

Table 1.4

Chapter 2

Term 2

2.1 Structure of SA[1]

2.1.1 GEOGRAPHY

2.1.2 Grade 5

2.1.3 THE PHYSICAL STRUCTURE OF SOUTH AFRICA

2.1.4 Module 7

2.1.5 THE STRUCTURE OF THE RSA

- The surface of the RSA is not as flat as a tabletop. The uneven nature of the surface has to do with the structure or morphology of the land. Landforms such as coastal plains, lowlands, plateaux, mountains and rivers constitute the structure of the land.
- If you look at the relief map of the RSA below, or at any physical map of the RSA in an atlas, you will understand that different parts of our country are situated on different altitudes above sea level.

---

[1] This content is available online at <http://cnx.org/content/m22263/1.1/>.

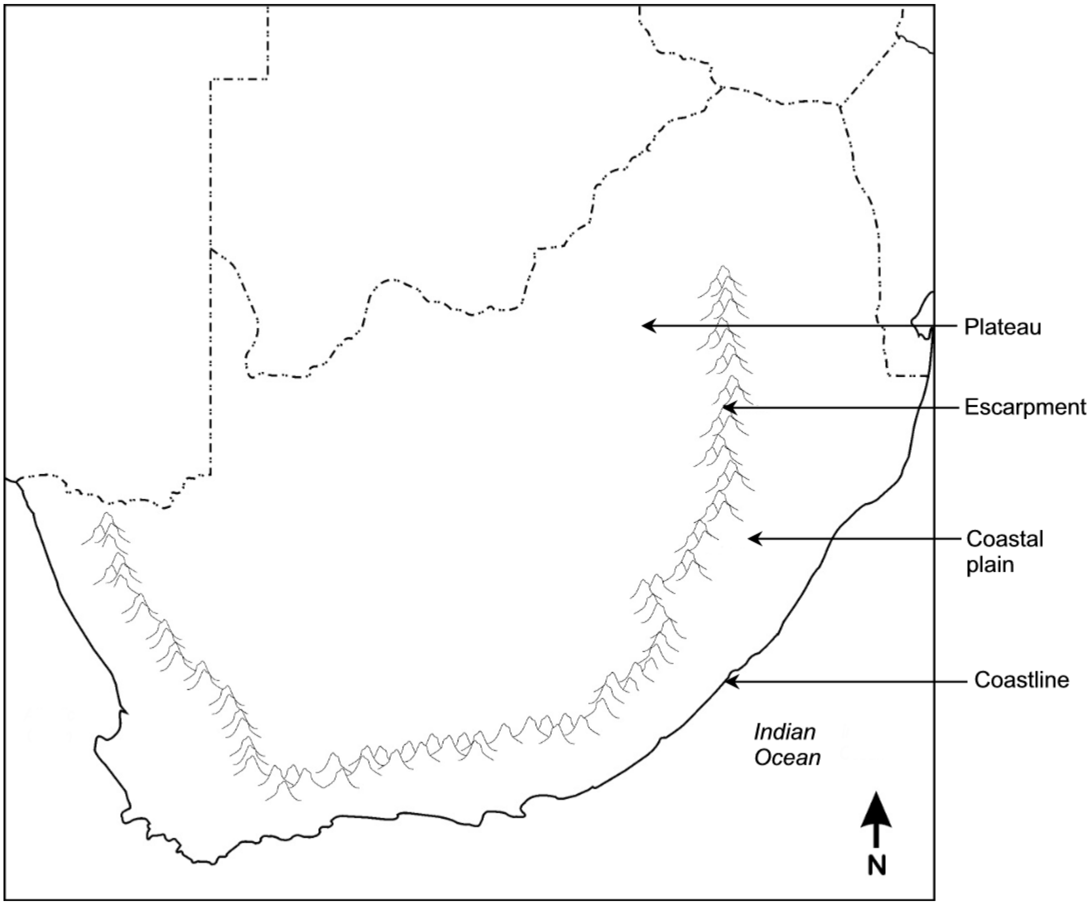

Figure 2.1

Figure 1

- Different colours are used on such a relief map to indicate the different altitudes above sea level:

  Green = lowest areas, e.g. coastal regions
  Yellow = just higher than the green areas (Little Karoo)
  Orange = higher areas
  Brown = mountains
  Purple / white = highest mountain peaks
  Blue = water

- Use your atlas and colour your map according to the above-mentioned colour key.

2.1.5.1 Morphological areas of the RSA

Coastline and coastal plains

- The *coastline* is the area where the land meets the sea. The RSA has a very long and almost unbroken coastline with few capes (points such as Cape Point) and few bays (such as Table Bay and False Bay). The only area where both these are to be found, is the Cape Peninsula.

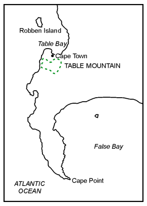

Figure 2.2

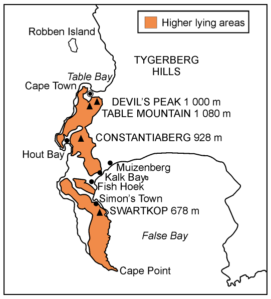

Figure 2.3

Figure 2

- The *coastal plain* is thelow-lying area along the coast. The coastal plain of the RSA forms a narrow band between the sea and the mountains of the escarpment.

2.1.5.1.1 The Little Karoo and the Great Karoo

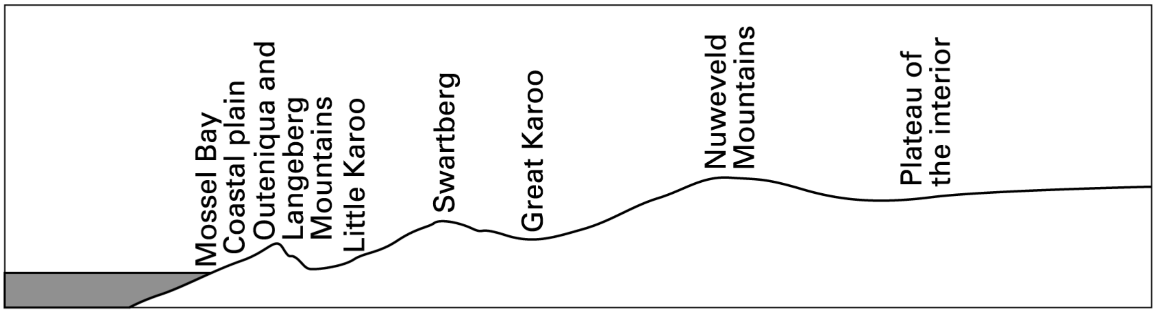

Figure 2.4

Figure 3

- There is, however, an area between the sea and the escarpment where one first has to climb a few "steps" to reach the escarpment. These "steps" are called the Karoo. "Karoo" is a word meaning hard. Thus it is a hard, dry region.
- It comprises two flat smaller plateaux between mountain ranges.
- From the south coast (Mossel Bay) the land rises gradually from the coastal plain to the Outeniqua Mountains and the Langeberg. The low-lying area that follows this and lies just before the Swartberg Mountains is called the *Little Karoo.* To the north of the Swartberg range lies the *Great Karoo*, which is situated one step higher than the Little Karoo. It is found just before the Nuweveld Mountains, which form part of the escarpment.

2.1.5.1.2 Plateau and escarpment

- The *escarpment* indicates where theplateau of the interior begins, and forms an unbroken mountain chain. It begins with the *Kamiesberg* range in the northwest, and towards the south it becomes the *Roggeveld* Mountains. It then veers towards the east, where the *Nuweveld*, *Sneeu*, and *Storm* mountain ranges are found. In the northwest one finds the Drakensberg range. Here the escarpment is much higher than elsewhere. The highest peaks of the Drakensberg are *Mont-Aux-Sources*(3 299 m) and *Thaba Ntlenyana* (3 482 m). The escarpment forms our country's most important watershed.
- The mountains of South Africa were formed by curvature, shifting or folding, just like all other mountains throughout the world. The Hex River Mountains, the Cederberg Mountains, the Swartberg range and the Langeberg Mountains are, for example, all fold mountains in sedimentary rock. Many of these have become flattened by erosion, and one does not see much of it. Examples of igneous rock can be seen in the Drakensberg range.
- Unfortunately the escarpment prevents moist air from the sea reaching the *interior plateau*, which causes frequent droughts in the interior of the country.
- The interior plateau is the vast stretch of land that is situated to the interior of the escarpment. It covers the greatest part of the RSA and lies from 900 m (west) to 3 000 m (east) above sea level.

2.1.5.2 ACTIVITY 1:

2.1.5.3 TO ACQUIRE KNOWLEDGE AND ANSWER QUESTIONS

2.1.5.4 [LO 1.1; 2.1]

Use the previous acquired knowledge and your atlas to answer the following questions on the physical features of South Africa.

What do you understand under the physical features of a country?

On what kind of map would you study the physical features of a country?

Use your atlas and find out in which two regions the coastal plain is at its widest:

_____________ and _____________

Which do you think is best: an unbroken coastline, or a broken one?

Give a reason for your answer. Give an example from your atlas of a continent with a broken coastline.

What is meant by the term "escarpment"?

Between which two mountain ranges is the Great Karoo?

_________________ and_______________

The Little Karoo is situated between the Outeniqua Mountains and the

_________________in the south, and the_____________the north.

Find the exact location of Mont-Aux-Sources en Thaba Ntlenyana in your atlas. In which mountain range are these peaks?

What is meant by the term "watershed"?

How, do you think, does the plateau's altitude above sea level influence the temperature in the interior?

Other mountain ranges

- The *Cederberg* Mountains in the northwest, and the mountain ranges that lie between the coastal plain and the southern escarpment, are of special importance. The *Drakenstein*, *Hottentots-Holland*, *Langeberg*, and *Outeniqua Mountains* form the coastal chain (closer to the sea), while the Karoo chain (closer to the escarpment) is formed by the *Swartberg* and *Winterberg* ranges. The *Soutpansberg* and *Waterberg* Mountains lie to the northeast.

The Lowveld

- The low-lying region between the *Lebombo* Mountains and the *Drakensberg* in the northeast of the country is called the Lowveld.

2.1.5.5 ACTIVITY 2:

2.1.5.6 TO DISCUSS POSSIBLE SOLUTIONS FOR A PROBLEM

2.1.5.7 [LO 1.7; 2.3]

It is the second half of the 17th century. The first settlers want to explore the interior of the Cape Colony. However, they must first cross the Hex River and Cederberg Mountains. What must they do to overcome the problem?

Work as a group and discuss possible solutions. Make a presentation to the class. Remember that you may only make use of 17th century technology.

2.1.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

- with guidance, selects and uses sources of useful geographical information (including graphs, maps and fieldwork outside the classroom) [finds sources];

- categorises information;

- uses an index to find places on global atlas maps [works with sources];

- demonstrates knowledge and understanding of the issue through projects, discussion, debate and charts [communicates the answer].

LO 2

GEOGRAPHICAL KNOWLEDGE AND UNDERSTANDING

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

We know this when the learner:

2.1 identifies and describes major physical features of South Africa, including those of the home province;

2.2 identifies links between natural resources and economic activities in South Africa;

2.3 describes ways in which the physical environment influences human activity and how human activity is influenced by the physical environment.

2.1.7 Memorandum

- Uneven surface of a country – different land forms
- Relief
- NE and SW
- Broken
- Natural harbours
- Europe
- Where the plateau in the interior begins (continuous mountain range)
- Swartberg and Nuweveld Mountains
- Langeberg and Swartberg Mountains
- Drakensberg Mountains
- Mountains turn away rain-bearing clouds/winds from the interior – interior drier
- Cooler

2.2 The physical features and mountains[2]

2.2.1 GEOGRAPHY

2.2.2 Grade 5

2.2.3 THE PHYSICAL STRUCTURE OF SOUTH AFRICA

2.2.4 Module 8

2.2.5 THE PHYSICAL FEATURES AND MOUNTAINS

2.2.5.1 ACTIVITY 1:

2.2.5.2 TO STUDY THE ACCOMPANYING MAP OF THE PHYSICAL FEATURES OF SOUTH AFRICA

2.2.5.3 [LO 1.1]

Study the map provided below (physical features of the RSA), and then colour it correctly according to the colour key. Use your atlas as an aid.

Look at the green band along the coast. Why is it green?

What colour is the largest part of the RSA? Why is it this colour?

Where are the highest parts of South Africa? What is their colour on the map?

Insert the names of the mountain ranges that have been indicated on the map (figure 4) in the table (p. 10).

Indicate the position of Mont-Aux-Sources and Thaba Ntlenyana on the map.

What does the following mean?

Karoo chain

Coastal chain

How can one deduce from the map that the plateau falls/drops from the highest easterly parts/regions/areas? In which direction does the plateau fall/drop?

Physical features of the RSA

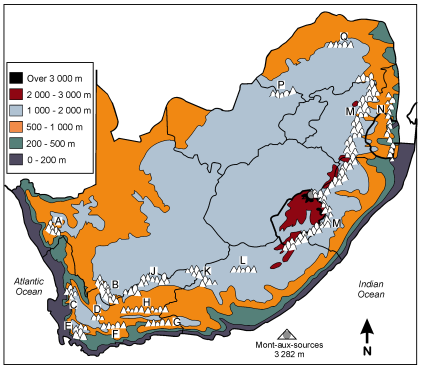

Figure 2.5

Figure 4

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[2] This content is available online at <http://cnx.org/content/m22266/1.1/>.

TABLE……………………………………………………………………………………………………
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q

Table 2.1

2.2.5.4 ACTIVITY 2:

2.2.5.5 TO COMPILE A MEMORY MAP

2.2.5.6 [LO 1.3]

Draw a memory map of what you have learnt up to now. Compare it to the memory map below.

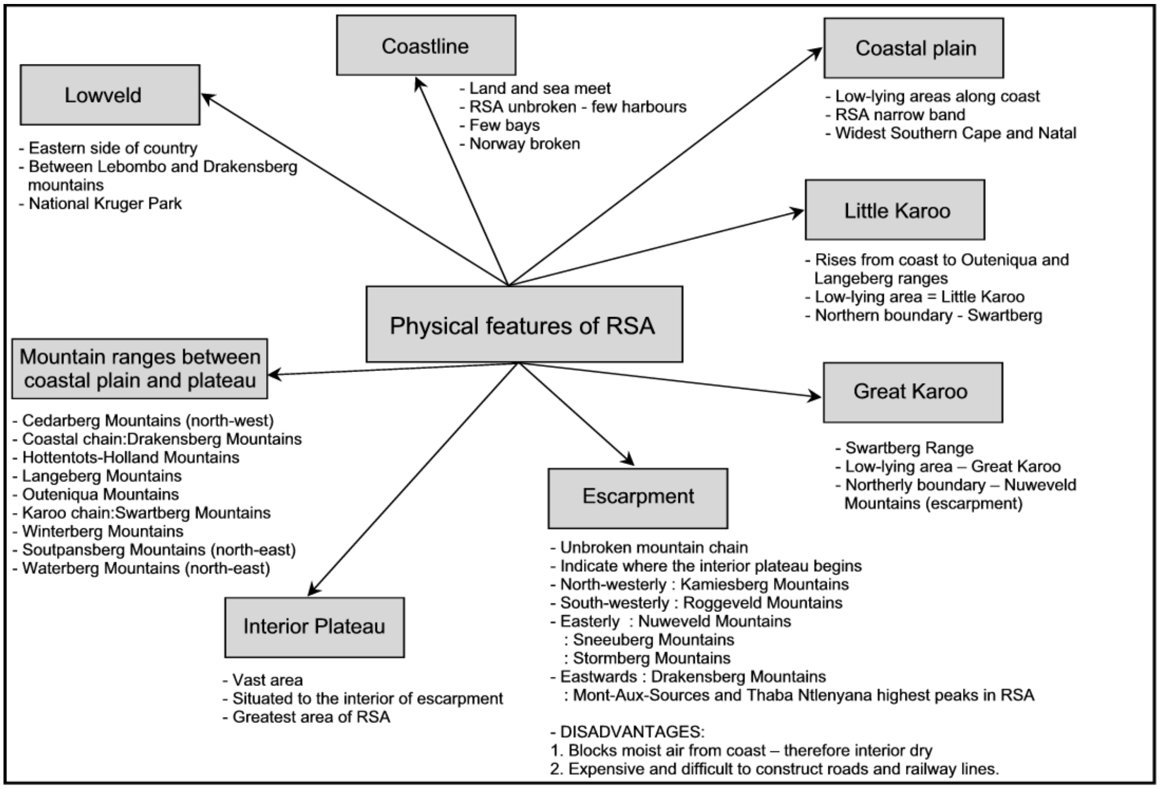
Physical features of RSA
Coastline
- Land and sea meet
- RSA unbroken - few harbours
- Few bays
- Norway broken
Coastal plain
- Low-lying areas along coast
- RSA narrow band
- Widest Southern Cape and Natal
Lowveld
- Eastern side of country
- Between Lebombo and Drakensberg mountains
- National Kruger Park
Little Karoo
- Rises from coast to Outeniqua and Langeberg ranges
- Low-lying area = Little Karoo
- Northern boundary - Swartberg
Mountain ranges between coastal plain and plateau
- Cedarberg Mountains (north-west)
- Coastal chain:Drakensberg Mountains
- Hottentots-Holland Mountains
- Langeberg Mountains
- Outeniqua Mountains
- Karoo chain:Swartberg Mountains
- Winterberg Mountains
- Soutpansberg Mountains (north-east)
- Waterberg Mountains (north-east)
Great Karoo
- Swartberg Range
- Low-lying area – Great Karoo
- Northerly boundary – Nuweveld Mountains (escarpment)
Escarpment
- Unbroken mountain chain
- Indicate where the interior plateau begins
- North-westerly : Kamiesberg Mountains
- South-westerly : Roggeveld Mountains
- Easterly : Nuweveld Mountains
: Sneeuberg Mountains
: Stormberg Mountains
- Eastwards : Drakensberg Mountains
: Mont-Aux-Sources and Thaba Ntlenyana highest peaks in RSA
- DISADVANTAGES:
1. Blocks moist air from coast – therefore interior dry
2. Expensive and difficult to construct roads and railway lines.
Interior Plateau
- Vast area
- Situated to the interior of escarpment
- Greatest area of RSA

Figure 2.6

2.2.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

- with guidance, selects and uses sources of useful geographical information (including graphs, maps and fieldwork outside the classroom) [finds sources];

- categorises information [works with sources];
- draws sketch maps and/or plans from field observation and measurements [works with sources];
- uses an index to find places on global atlas maps [works with sources];

- demonstrates knowledge and understanding of the issue through projects, discussion, debate and charts [communicates the answer].

2.2.7 Memorandum

ACTIVITY 1:

- Low-lying (coastal plains)
- Yellow/orange – plateau
- Drakensberg Mountains (E) – purple/white
- Swartberg and Winterberg Mountains together form the mountains that divide the Great and Little Karoo.
- Drakenstein, Hottentots-Holland, Langeberg and Outeniqua Mountains together form one mountain range that divides the coastal plain from the Little Karoo.
- Colour changes from purple/white to orange to yellow (from E to W).

2.3 Rivers[3]

2.3.1 GEOGRAPHY

2.3.2 Grade 5

2.3.3 THE PHYSICAL STRUCTURE OF SOUTH AFRICA

2.3.4 Module 9

2.3.5 RIVERS OF THE RSA

2. Rivers of the RSA

All rivers flow from a high-lying area to a low-lying area. All the rivers of the RSA rise from the interior plateau or the escarpment (watershed) and flow to the sea. Many of the rivers of the RSA are not *constant*, which means that they only contain water during the rainy season. The rivers of the RSA are also unsuitable for water traffic, because of the many rapids, waterfalls and sandbanks. These types of rivers are called *unnavigable* rivers.

The Orange River

The Orange River is the largest and longest river in South Africa. It rises in the Drakensberg in the east (near Mont-Aux-Sources) and flows westward across the full breadth of the RSA. Its mouth is at Oranjemund along the west coast. The Orange River forms quite a number of borders, of which the most important is the border between the RSA and Namibia.

The Gariep Dam was built in the upper courses of the Orange River to store water for the dry periods of the year. Thus the water is used mainly for irrigation, but the dam is also an important source of hydro-electric power.

Just to the east of the dam the first tributary, the *Caledon River*, in which the *Vanderkloof Dam* was built, joins the Orange River. Near Douglas, the second tributary, the *Vaal River,* which houses the Vaal Dam, joins up, and later the *Wilge* and *Harts Rivers flow into the* Vaal River. The Augrabies Waterfall is near Kakamas, which is lower down in the Orange.

The Limpopo River

The Limpopo rises near Johannesburg, where it is called the Crocodile River. Just after it is joined by the Great Marico tributary, it is called the Limpopo. Another important tributary is the Olifants River. The Limpopo first forms the border between the RSA and Botswana, and later also between the RSA and Zimbabwe. It then flows through Mozambique, where it ultimately flows into the Indian Ocean.

Rivers that flow directly coastwards from the escarpment

These rivers are much shorter and decline more sharply towards the sea. This causes them to flow rapidly in deep valleys, which makes irrigation quite difficult.

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[3] This content is available online at <http://cnx.org/content/m22267/1.1/>.

The rivers to the northeast, which rise in the Drakensberg escarpment, are the *Komati, Pongola, Tugela, Great Kei and Keiskamma Rivers.* Lower down there are the *Sundays*, *Great Fish*, *Gamtoos*, *Gouritz and Breede Rivers.* The *Berg* and *Olifants Rivers* flow along the west coast.

2.3.5.1 ACTIVITY 1:

2.3.5.2 TO IDENTIFY THE RIVERS ON A MAP

2.3.5.3 [LO 1.1; 2.1]

Use your atlas to identify the rivers indicated on the map.

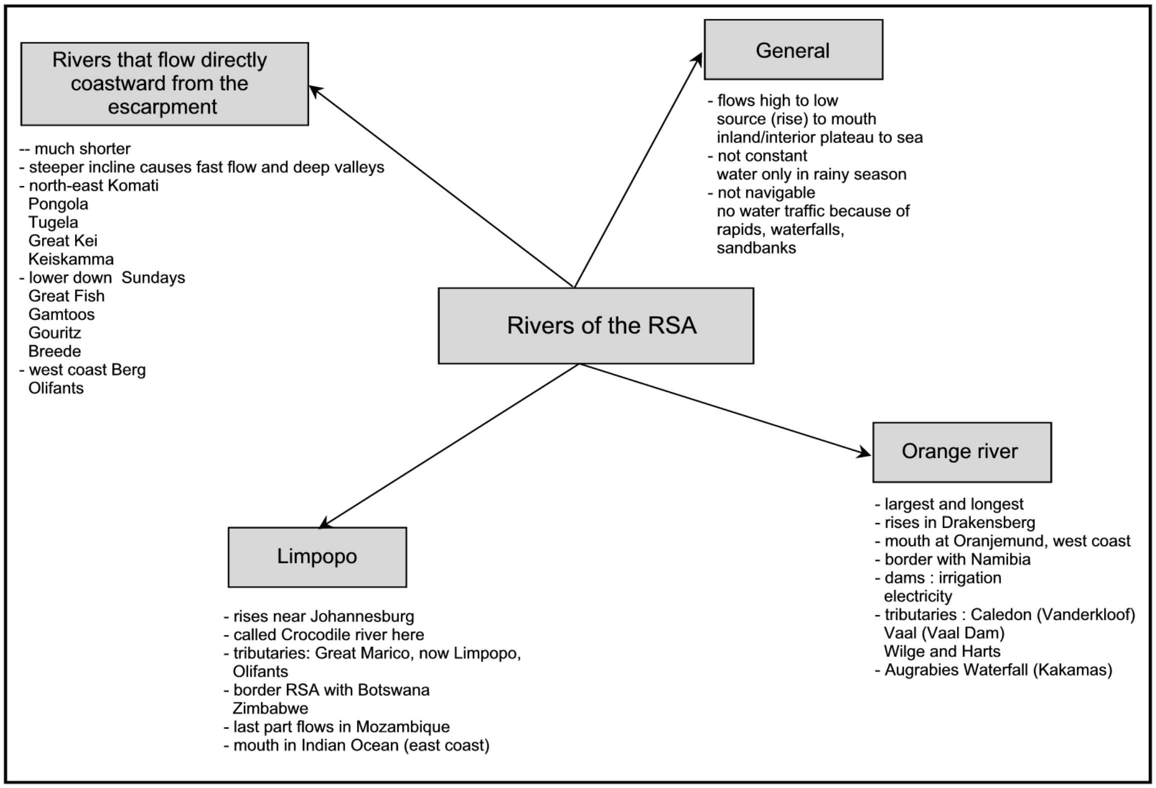
Rivers that flow directly coastward from the escarpment
-- much shorter
- steeper incline causes fast flow and deep valleys
- north-east Komati
Pongola
Tugela
Great Kei
Keiskamma
- lower down Sundays
Great Fish
Gamtoos
Gouritz
Breede
- west coast Berg
Olifants
General
- flows high to low
source (rise) to mouth
inland/interior plateau to sea
- not constant
water only in rainy season
- not navigable
no water traffic because of
rapids, waterfalls,
sandbanks
Rivers of the RSA
Orange river
- largest and longest
- rises in Drakensberg
- mouth at Oranjemund, west coast
- border with Namibia
- dams : irrigation
electricity
- tributaries : Caledon (Vanderkloof)
Vaal (Vaal Dam)
Wilge and Harts
- Augrabies Waterfall (Kakamas)
Limpopo
- rises near Johannesburg
- called Crocodile river here
- tributaries: Great Marico, now Limpopo,
Olifants
- border RSA with Botswana
Zimbabwe
- last part flows in Mozambique
- mouth in Indian Ocean (east coast)

Figure 2.7

2.3.5.4 ACTIVITY 2:

2.3.5.5 USING AN ATLAS TO FIND INFORMATION

2.3.5.6 [LO 1.1; 2.1]

- Number each river on the map and write down the name of the river in the table.
- Fill in the following on your map. Use your atlas.
    - Oceans

  - Namibia, Botswana, Mozambique, Swaziland, Lesotho
  - Oranjemund, Douglas, Johannesburg
  - Augrabies Waterfall
- In which direction does the Orange River flow?
- Why does the Orange River follow a long route to the Atlantic Ocean instead of taking a shortcut to the Indian Ocean?
- Why, in your opinion, does the Orange River have so few tributaries in the western part?
- Explain why the Augrabies Waterfall is in that particular place.
- Which other river system is to be found in the interior of the country? Why is it called a river system?
- With which other countries does the Limpopo form the border of the RSA?
- Why, in your opinion, do the rivers that flow rapidly from the plateau, have such deep ravines?
- Conservation dams have been built in most of these rivers. What is the water used for?
- Which part of South Africa would you most like to visit? How, do you think, would it differ from your own environment?
- In which part of South Africa (eastern or western) are dry riverbeds mainly found? Give a reason for your answer.
- Determine which river flows near your town or city. Try to find out: - to which river system this river belongs; - what the water from this river is used for.

Rivers of the RSA

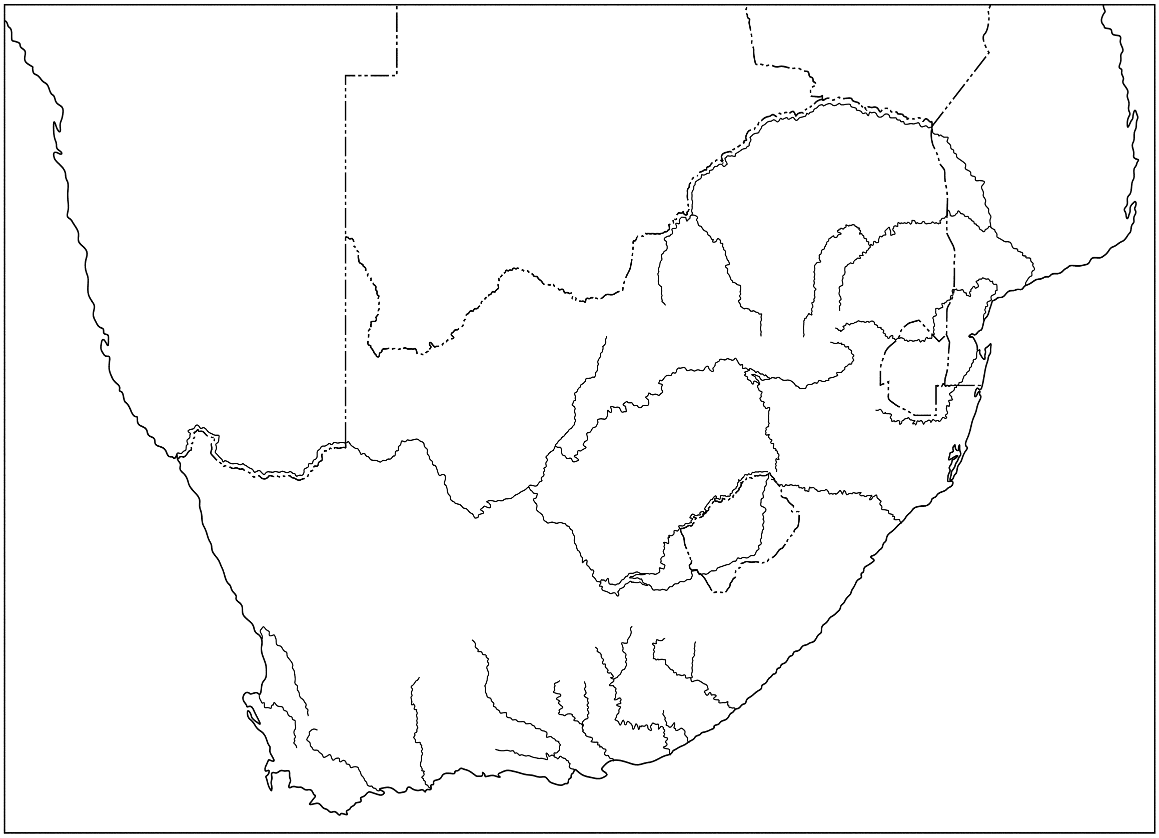

Figure 2.8

- Johannesburg

The Orange River System
1.
2.
3.
4.
5.
6.
The Limpopo River System
7.
8.
9.
10.
Rivers from escarpment to coastal plain
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.
22.

Table 2.2

2.3.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

- with guidance, selects and uses sources of useful geographical information (including graphs, maps and fieldwork outside the classroom) [finds sources];
- categorises information [works with sources];

- draws sketch maps and/or plans from field observation and measurements [works with sources];
- uses an index to find places on global atlas maps [works with sources];

- demonstrates knowledge and understanding of the issue through projects, discussion, debate and charts [communicates the answer].

LO 2

GEOGRAPHICAL KNOWLEDGE AND UNDERSTANDING

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

We know this when the learner:

2.1 identifies and describes major physical features of South Africa, including those of the home province [people and places];

2.2 identifies links between natural resources and economic activities in South Africa [people and resources];

2.3 describes ways in which the physical environment influences human activity and how human activity is influenced by the physical environment [people and the environment].

2.3.7 Memorandum

- W
- From plateau forest sloping towards the ocean
- Dry – little rain and mountains
- Descends from plateau to coast
- Limpopo – many tributaries
- Botswana, Zimbabwe
- Flows rapidly from high altitude towards the coast – lot of erosion
- Irrigation, drinking water, electricity
- W – little rain

2.4 Changing landscape[4]

2.4.1 GEOGRAPHY

2.4.2 Grade 5

2.4.3 THE PHYSICAL STRUCTURE OF SOUTH AFRICA

2.4.4 Module 10

2.4.5 THE CHANGING LANDSCAPE

The landscape as we see it with valleys, hills, lakes, dams, etc. changes constantly. The changes are caused by either people, or forces of nature.

Rivers

- During the rainy season the water that falls on the earth, gathers in small streams and eventually become rivers that find a downhill path to the sea. The movement of the water over the soil not only takes the topsoil along, but also breaks down the soil and rocks into smaller particles. Over long periods the rivers become deeper and wider. Eventually valleys and ravines are formed. Think of the Fish River Canyon in Namibia.

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[4] This content is available online at <http://cnx.org/content/m22268/1.1/>.

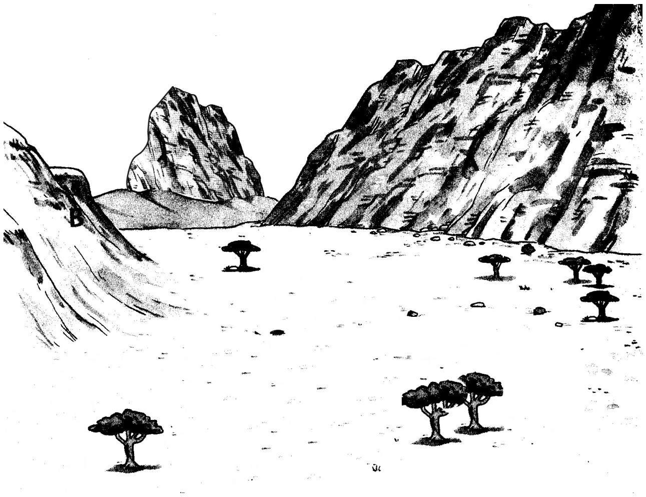

Figure 2.9

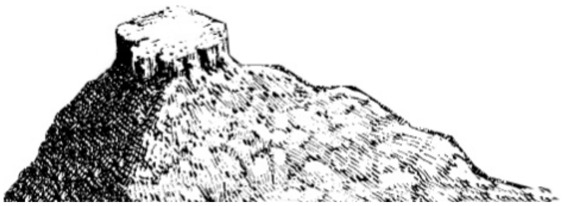

Figure 2.10

Erosion

- The onslaught by nature, e.g. frost, hail, snow and sun, causes rocks to become more porous. The rocks are eroded over a long period and small pieces break off. When the wind and the rain carry the particles away, we call the movement of the material erosion. The small particles are later deposited elsewhere. A new and fertile layer of soil is then formed.
- When this process continues over a long period, the landscape changes. Valleys, hills and ravines are formed. The softer types of rock erode faster than the surrounding harder rock, therefore creating interesting landscapes, such as the table-top hills in the Great Karoo.

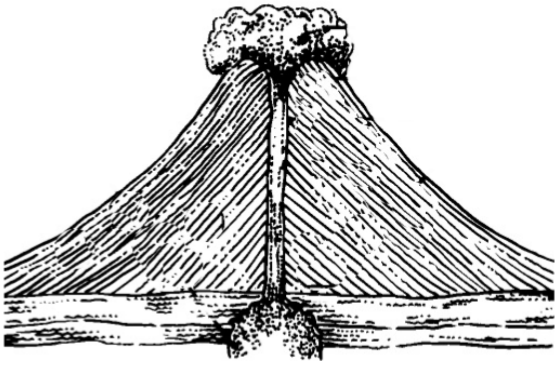

Figure 2.11

Volcanoes

- The outermost layer of the earth is called the crust and consists of rocks. Deep inside the earth the heat is so intense that the rock melts and magma (molten rock) is formed. This boiling mass is always looking for a weak spot in the crust of the earth through which it can escape. When the molten rock reaches the surface of the earth, it is called lava. It cools down, coagulates and forms new rock, thus creating a new landscape. The crater of rock is sometimes so big that a high mountain is formed.

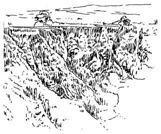

Figure 2.12

Faults

-
- The crust of the earth is constantly exposed to thrust and tractive powers as a result of the unstable core of the earth. It sometimes happens that a part of the crust of the earth is pushed up from underneath and then protrudes above the rest of the landscape. The edge or slope of the earth's crust where the movement took place is known as a fault. Sometimes the different rock layers underneath the crust of the earth are exposed.

People

- People try to control their environment and constantly try to change it to comply with their needs.

2.4.5.1 ACTIVITY 1:

2.4.5.2 TO WRITE A SHORT PARAGRAPH ON A PARTICULAR SUBJECT

2.4.5.3 [LO 2.3]

Write a short paragraph on how and why people constantly try to change the surrounding landscape.

Did you mention: housing; mining; agriculture; transport?

2.4.5.4 ACTIVITY 2:

2.4.5.5 TO DO RESEARCH ON CERTAIN TOPICS

2.4.5.6 [LO 1.7; 2.3]

Choose one of the following ways in which people can influence the natural landscape indirectly. Pay a visit to the local library or consult other sources for more information and write a short report and present it to the class.

- Deforestation
- Soil erosion as a result of human activities
- Vegetation is destroyed as a result of global warming
- Mono-cropping
- Waste products and its influence on vegetation

2.4.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

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1.3 categorises information [works with sources];

1.4 draws sketch maps and/or plans from field observation and measurements [works with sources];

- uses an index to find places on global atlas maps [works with sources];

1.7 demonstrates knowledge and understanding of the issue through projects, discussion, debate and charts [communicates the answer].

LO 2

GEOGRAPHICAL KNOWLEDGE AND UNDERSTANDING

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

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2.1 identifies and describes major physical features of South Africa, including those of the home province [people and places];

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2.5 Weather[5]

2.5.1 GEOGRAPHY

2.5.2 Grade 5

2.5.3 CLIMATE AND VEGETATION REGIONS OF SOUTH AFRICA

2.5.4 Module 11

2.5.5 WEATHER FROM DAY TO DAY

1. Weather Guide

- There are various sources in the media daily that supply the reader and listener or viewer with the expected weather conditions for the day or the next few days.

2.5.5.1 ACTIVITY 1:

2.5.5.2 TO STUDY A WEATHER GUIDE AND COMPLETE THE TABLE

2.5.5.3 [LO 1.3]

Study the copy of a weather guide from *Die Burger* of 2 October 2004 and complete the table that follows.

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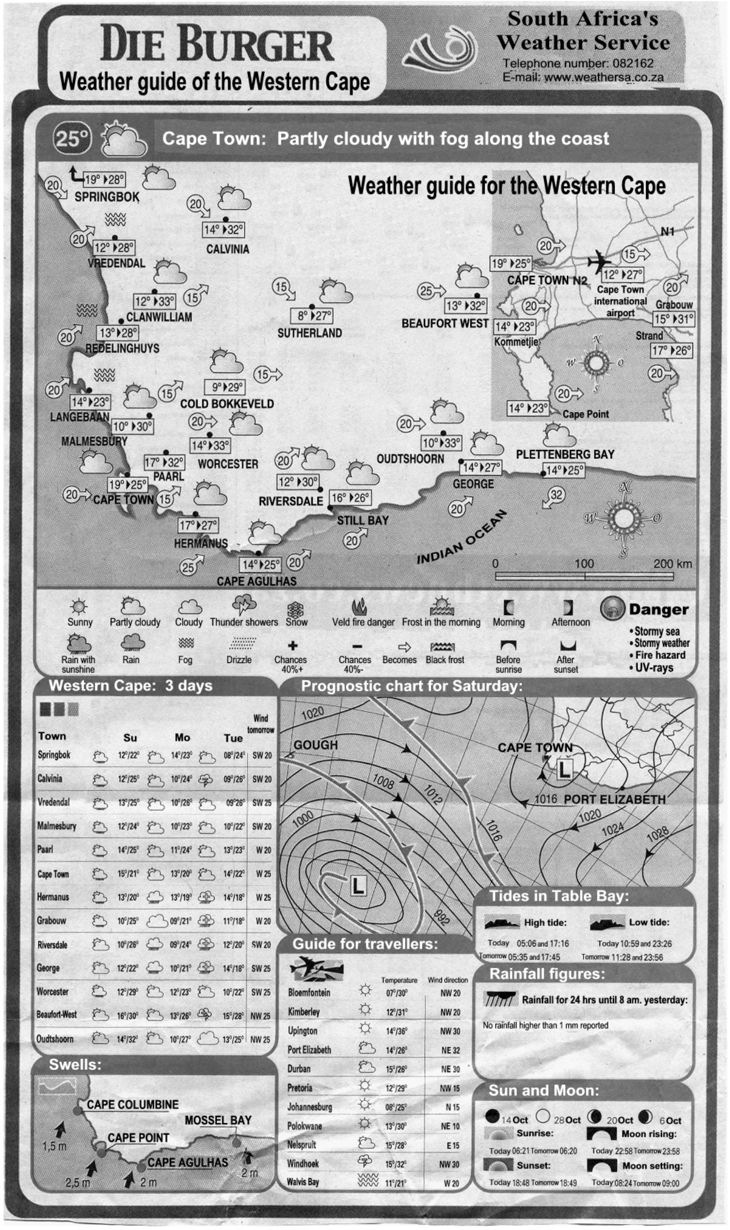
[5] This content is available online at <http://cnx.org/content/m22264/1.1/>.



DIE BURGER
Weather guide of the Western Cape

South Africa's Weather Service
Telephone number: 082162
E-mail: www.weathersa.co.za

25° **Cape Town: Partly cloudy with fog along the coast**

☀ Sunny
⛅ Partly cloudy
☁ Cloudy
⛈ Thunder showers
❄ Snow
Veld fire danger
Frost in the morning
Morning
Afternoon
Rain with sunshine
Rain
Fog
Drizzle
+ Chances 40%+
- Chances 40%-
⇨ Becomes
Black frost
Before sunrise
After sunset

Danger
- Stormy sea
- Stormy weather
- Fire hazard
- UV-rays

Western Cape: 3 days

Town		Su		Mo		Tue	Wind tomorrow
Springbok	⛅	12°/22°	⛅	14°/23°	⛅	08°/24°	SW 20
Calvinia	⛅	12°/25°	⛅	10°/24°	⛈	09°/26°	SW 20
Vredendal	⛅	13°/25°	⛅	10°/26°	⛅	09°26°	SW 25
Malmesbury	⛅	12°/24°	⛅	10°/23°	⛅	10°/22°	SW 20
Paarl	⛅	14°/25°	⛅	11°/24°	⛅	13°/23°	W 20
Cape Town	⛅	15°/21°	⛅	13°/20°	⛅	14°/22°	W 25
Hermanus	⛅	13°/20°	☁	13°/19°	☁+	14°/18°	W 25
Grabouw	⛅	10°/25°	☁	09°/21°	☁+	11°/18°	W 20
Riversdale	⛅	10°/26°	☁	09°/24°	☁+	12°/20°	SW 20
George	⛅	12°/22°	☁	10°/21°	☁+	14°/18°	SW 25
Worcester	⛅	12°/29°	⛅	12°/23°	⛅	10°/22°	SW 25
Beaufort-West	⛅	16°/30°	⛅	13°/26°	⛈	15°/28°	NW 25
Oudtshoorn	⛅	14°/32°	⛅	10°/27°	☁	13°/25°	NW 25

Prognostic chart for Saturday:

Swells:

Guide for travellers:

		Temperature	Wind direction
Bloemfontein	☀	07°/30°	NW 20
Kimberley	☀	12°/31°	NW 20
Upington	☀	14°/36°	NW 30
Port Elizabeth	⛅	14°/26°	NE 32
Durban	⛅	15°/26°	NE 30
Pretoria	☀	12°/29°	NW 15
Johannesburg	☀	08°/25°	N 15
Polokwane	☀	13°/30°	NE 10
Nelspruit	⛅	15°/28°	E 15
Windhoek	⛈	15°/32°	NW 30
Walvis Bay	≋	11°/21°	W 20

Tides in Table Bay:

	High tide:	Low tide:
Today	05:06 and 17:16	10:59 and 23:26
Tomorrow	05:35 and 17:45	11:28 and 23:56

Rainfall figures:

Rainfall for 24 hrs until 8 am. yesterday:

No rainfall higher than 1 mm reported

Sun and Moon:

● 14 Oct ○ 28 Oct ◐ 20 Oct ◑ 6 Oct

	Today	Tomorrow
Sunrise:	06:21	06:20
Sunset:	18:48	18:49
Moon rising:	22:58	23:58
Moon setting:	08:24	09:00

Figure 2.13

Maximum temperature for Vredendal	
Minimum temperature for Oudtshoorn	
Will fog occur?	
Wind direction at Cape Town	
Is rain expected?	
What will the weather be like at George on Sunday 3 October?	
What type of clothing will you wear in Clanwilliam?	
The Riversdale Primary School is organizing a sports day for Tuesday 5 October. Will it take place?	

Table 2.3

2. Weather instruments
To be able to record the weather, different instruments are needed.

2.5.5.4 ACTIVITY 2:

2.5.5.5 TO STUDY THE FOLLOWING SKETCH AND FIND OUT HOW THE INSTRUMENTS WORK. THEN COMPLETE THE TABLE.

2.5.5.6 [LO 1.2]

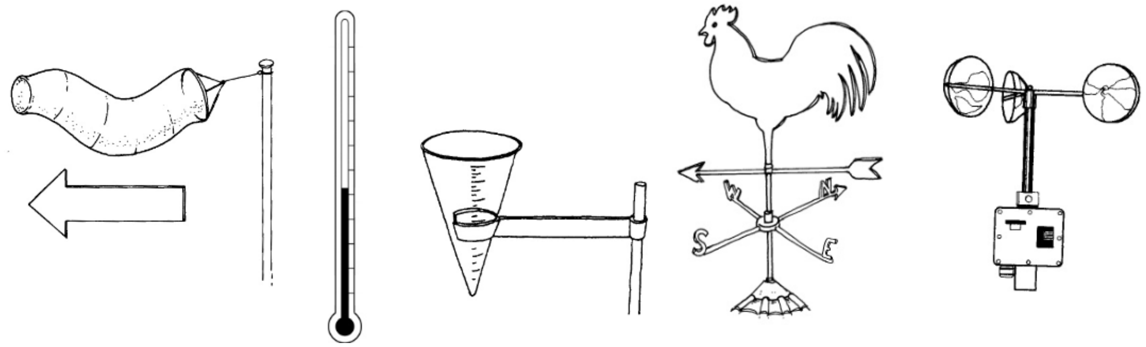


Figure 2.14

Elements of the Weather	Types of Instrument
Temperature	
Wind	
Rainfall	
Air pressure	

Table 2.4

2.5.5.7 ACTIVITY 3:

2.5.5.8 TO CONSULT THE APPROPRIATE SOURCES AND BUILD YOUR OWN WEATHER VANE AND RAIN GAUGE.

2.5.5.9 [LO 1.2]

Use these instruments and a thermometer that someone has brought to class to monitor the weather every day for one month. Write your observations in the table below. (You can also compare your observations with the weather report in the newspaper.)

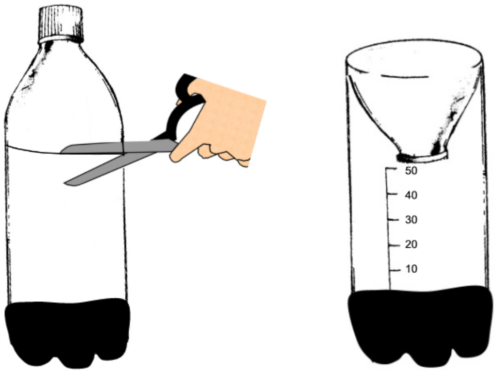


Figure 2.15

Rain gauge

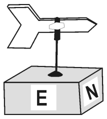


Figure 2.16

Weather vane

Date	Max temp.measured 14:00	Wind direction	Cloud rack	Rainfall in mm
Monday_ _ _ _ May	20 °C	NO	Partly cloudy	2 mm
Tuesday_ _ _ _ _ May	18 °C	N	Cloudy	8 mm
Wednesday_ _ _ May	22 °C	N	Partly cloudy	0 mm

Table 2.5

2.5.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information (including graphs, maps and fieldwork outside the classroom) [finds sources];

- distinguishes between facts and opinions [works with sources];
- categorises information [works with sources];
- draws sketch maps and/or plans from field observation and measurements [works with sources];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

2.5.7

2.5.8 Memorandum

ACTIVITY 1

Maximum temperature for Vredendal	28ºC
Minimum temperature for Oudtshoorn	10ºC
Will fog occur?	West Coast
Wind direction at Cape Town	SE
Is rain expected?	For Sunday
What will the weather be like at George on Sunday 3 October?	Partly Cloudy; SW wind 25; Temp. 12/22
What type of clothing will you wear in Clanwilliam?	Cool (very hot day)
The Riversdale Primary School is organizing a sports day for Tuesday 5 October. Will it take place?	They will have to have a plan B. 60%+ chance of rain

Table 2.6

ACTIVITY 2

- Thermometer
- Wind Meter/wind sock/weather vane
- Rain meter
- Barometer

2.6 Temperature[6]

2.6.1 GEOGRAPHY

2.6.2 Grade 5

2.6.3 CLIMATE AND VEGETATION REGIONS OF SOUTH AFRICA

2.6.4 Module 12

2.6.5 THE CLIMATE OF SOUTH AFRICA: TEMPERATURE

1. The topography of South Africa

- Because the relief of a country has a major influence on the climate of the country, we must refer to it again briefly. For more information you can return to the modules on South Africa's physical structure.
- If you study any natural map in an atlas, it will become clear that our country lies at varying heights above sea level (altitudes). A cross-profile of the topography of the RSA looks more or less like an inverted saucer.

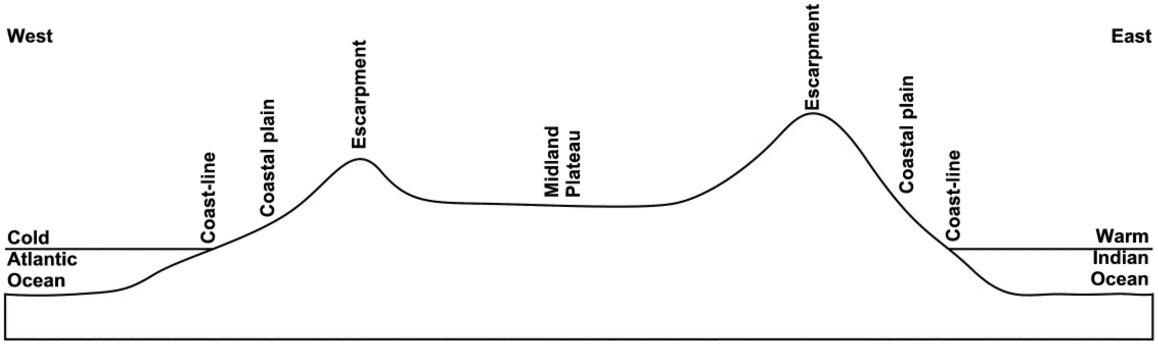


Figure 2.17

Figure 1: A cross-profile of the RSA

- The largest part of South Africa lies high above sea level. A warm sea-current flows along the east coast and a cold sea-current along the west coast. The high mountains along the coast cut off the midland plateau. These factors strongly influence the climate of the country.

2. Factors affecting South Africa's climate
Temperature

South Africa displays typical temperature patterns during different seasons. Few people plan a holiday on the west coast in winter, while Durban (south-east coast) has ideal holiday temperatures during winter.

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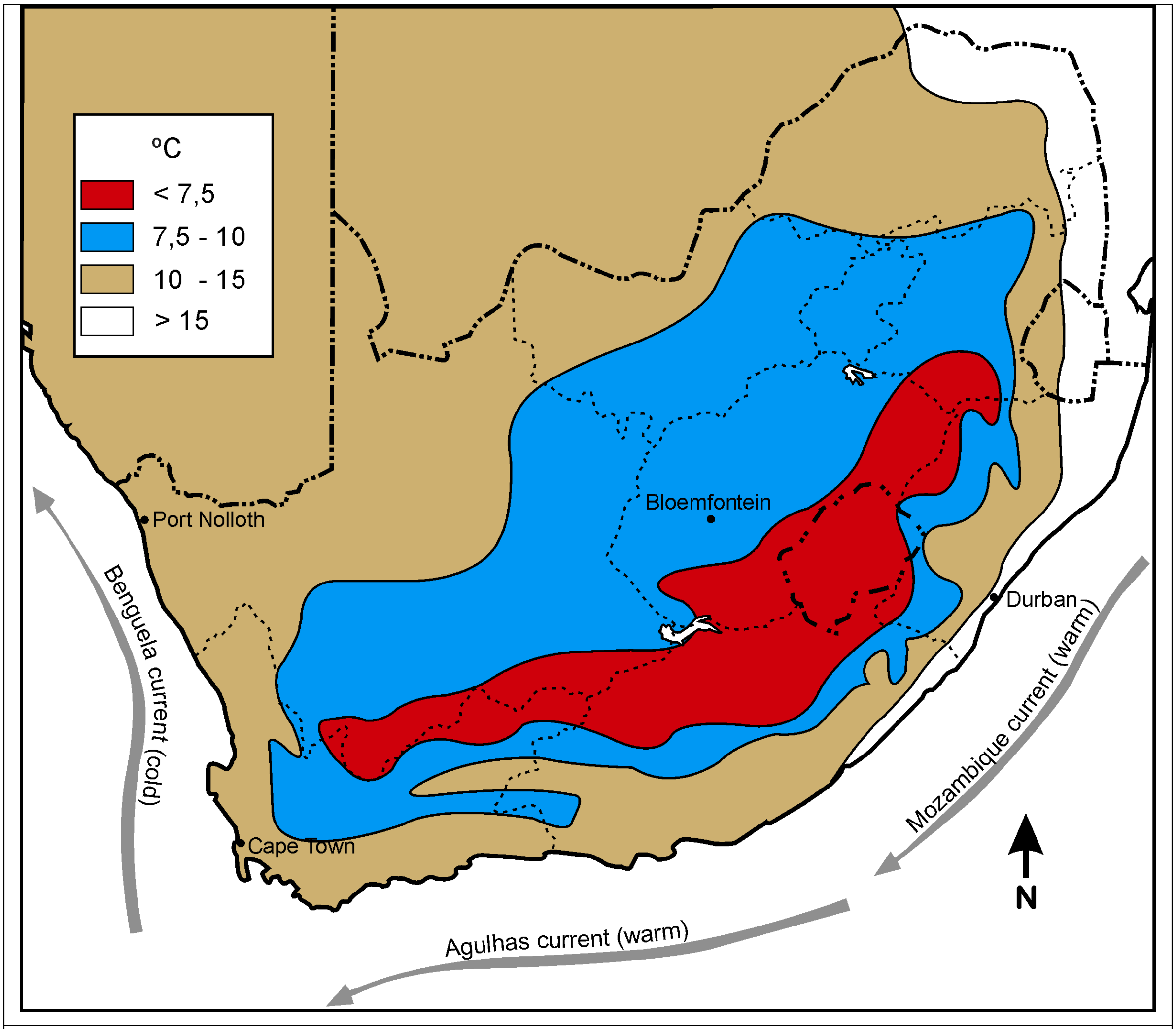
[6] This content is available online at <http://cnx.org/content/m22269/1.1/>.



Winter temperature in South Africa

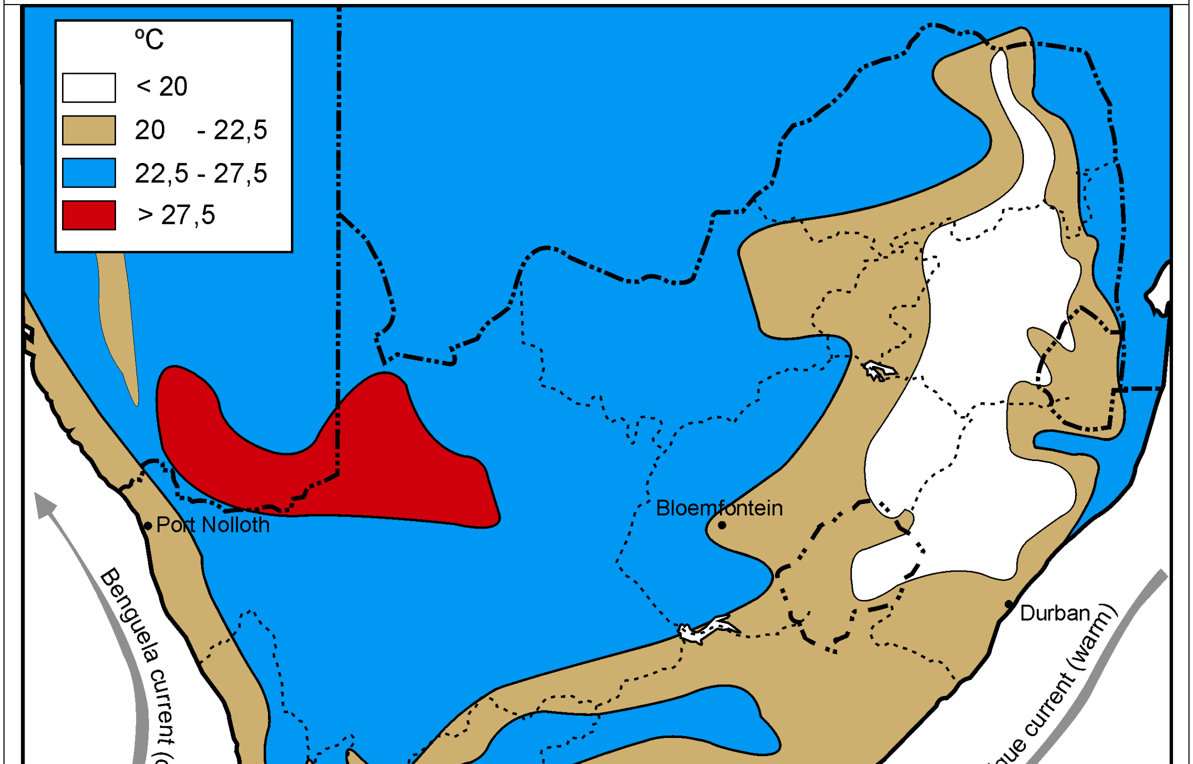


Table 2.7

The temperature of the RSA is influenced by the following:

Latitude location

The further a region is located from the Equator (0º L), the colder it is. Places in the tropics therefore experience warmer temperatures than places at the poles.

Altitude

The higher you go above sea level, the colder it becomes. Temperature therefore drops as altitude increases. Because the RSA's interior plateau is located high above sea level, it will be colder there than in parts along lower coastal areas. Frost is common on the interior plateau and snow occurs on the high mountains.

Sea currents

The warm Mozambique current flows southwest along the RSA's east coast, and the cold Benguela current flows north along the west coast. Air above a cold current is cold and there is little chance of rain. With a warm current the air is warm, rises, condenses and clouds and rain occur.

Distance from the sea

The sea has a **moderating** effect on climate. This means that areas that are close to the sea are not too hot in summer and not too cold in winter. The **temperature margin** is therefore small (difference between the highest and lowest temperatures). The reason for this is that water masses are not heated as quickly through insulation as the land surfaces. However, once water has absorbed heat, it retains it for longer than land surfaces. During the day radiation of heat from the soil is high, but it is low at night.

During the day the radiation from the sea's water is less and this results in lower temperatures than in the case of the interior. At night the earth radiates heat for longer and the coastal areas are therefore warmer at night than the interior. Use this information to do the following activities.

2.6.5.1 ACTIVITY 1:

2.6.5.2 TO STUDY THE LINE GRAPHS AND ANSWER THE QUESTIONS

2.6.5.3 [LO 1.1;1.7]

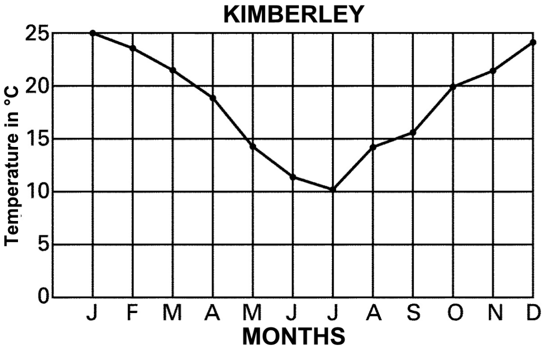


Figure 2.18

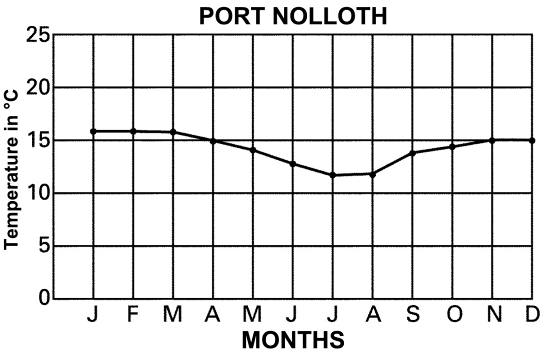


Figure 2.19

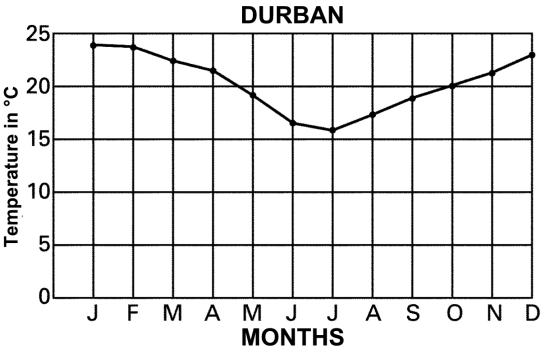


Figure 2.20

Explain why the day and night temperatures in Kimberley differ much more than those in Port Nolloth and Durban.

Why is Durban's temperature higher than that of Port Nolloth? Use your atlas to find the places if you are unsure.

2.6.5.4 ACTIVITY 2:

2.6.5.5 TO DRAW A LINE GRAPH OF THE TEMPERATURES OF BLOEMFONTEIN AND CAPE TOWN

2.6.5.6 [LO 1.7]

Study the following temperatures. Find the location of the various places in an atlas if you do not know where they are located. Remember the labels and headings.

Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Bloemfontein 24 °S;1 400 mabove sea level	23	22	20	16	11	9	8	11	15	18	20	22
Cape Town34 °S; sea level	22	22	20	18	15	14	13	14	15	17	19	20

Table 2.8

For each place in the above table indicate the following:

- the highest monthly temperature
- the lowest monthly temperature
- the temperature margin (difference between highest and lowest temperatures)
- the average temperature

Explain the difference in temperature between the following places by referring to the factors that affect the climate of South Africa

- Port Nolloth and Bloemfontein
- Bloemfontein and Cape Town

2.6.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

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- draws sketch maps and/or plans from field observation and measurements [works with sources];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

2.6.7 Memorandum

- Interior – far from the temperate influence of the ocean
- On a plateau – low winter temperature
- Warm ocean current

2.7 Rainfall[7]

2.7.1 GEOGRAPHY

2.7.2 Grade 5

2.7.3 CLIMATE AND VEGETATION REGIONS OF SOUTH AFRICA

2.7.4 Module 13

2.7.5 THE CLIMATE OF SOUTH AFRICA: RAINFALL

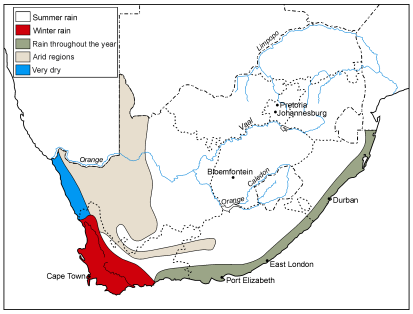

Figure 2.21

Rainfall regions in South Africa

- South Africa's rainfall is seasonal and very erratic. It therefore rains mainly just in summer or just in winter. A small part along the southeast and northeast coasts receives rain throughout the year.
- We already know that the relief or topography of the country and the occurrence of the warm Mozambique and cold Benguela currents have a great effect on the temperatures in the country.
- When studying the map above, you will notice that the rainfall regions of the country are divided into:

(i) winter rainfall regions
(ii) summer rainfall regions
(iii) rain throughout the year
(iv) dry regions

Each of them is discussed briefly below.

(i) The winter rainfall region

This occurs only in the southwestern part of the RSA, particularly in the Cape Peninsula. It stretches more or less from the mouth of the Olifants River (northwest) to the mouth of the Breede River (south). The cyclonic rain falls softly and persistently from May to August and the rain therefore gets a chance to drain into the soil. Little erosion occurs.

The average rainfall is between 500 and 1 000 mm per year. The rain-bringing winds are the northwest winds that cause the well-known cold fronts.

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[7] This content is available online at <http://cnx.org/content/m22272/1.1/>.

The vegetation in the winter rainfall regions consists of indeciduous (evergreen) shrubs and the well-known Cape fynbos like the protea and various types of heath. These plants are very well adapted to survive the dry summers. Types of root systems or bulbs with small, waxy leaves with fine hairs ensure that the plants lose the minimum water in the summer.

Graphic representation of the rainfall in Cape Town

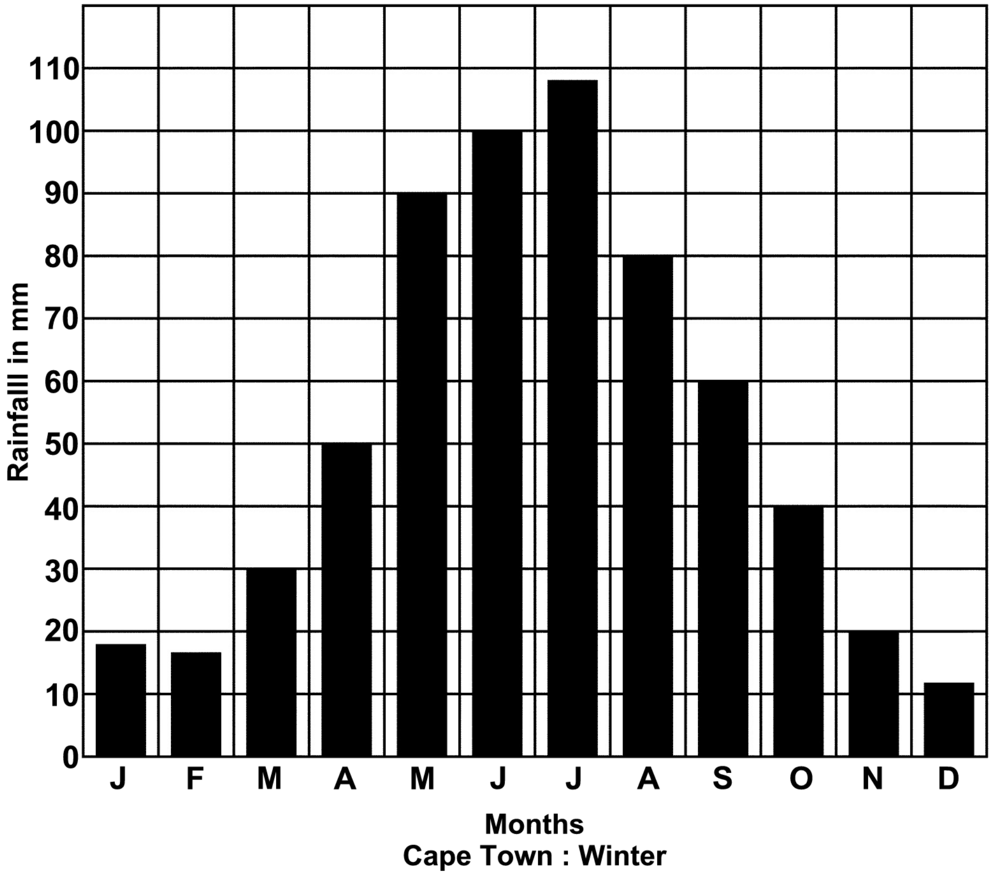


Figure 2.22

(i) Summer rainfall region

The biggest part of our country gets rain in summer, particularly from October to February, in the form of thunderstorms. During these warm months the earth's surface is heated intensely and upwards or convection air currents develop. The southeast winds bring moisture-laden air in, and after condensation has occurred, large cumulonimbus clouds are formed. Such a thunderstorm is accompanied by a short, hard shower of rain, thunder and lightning. Because the rain falls so hard and quickly, erosion is a serious problem in these regions. Hail also occurs regularly during thunderstorms, which can cause great damage to crops.

Because the region is so big, all the parts do not get an equal amount of rain. The east is much wetter (300 - 500 mm), because the air that is blown across the escarpment still contains a lot of moisture. Further to the west the air loses virtually all this moisture and that is why it also becomes increasingly dry to the west (50 - 300 mm).

The vegetation in the summer rainfall regions consists of grass plains with sparse trees. In the east of the country the grass plains are higher, with more trees, reducing to the west.

2.7.5.1 ACTIVITY 1:

2.7.5.2 TO RECORD THE RAINFALL FIGURES OF PRETORIA GRAPHICALLY BY MEANS OF A BAR GRAPH

2.7.5.3 [LO 1.4; 1.7]

Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Rainfall in mm	138	120	102	50	25	5	10	10	18	70	110	130

Table 2.9

Graphic representation of rainfall for Pretoria

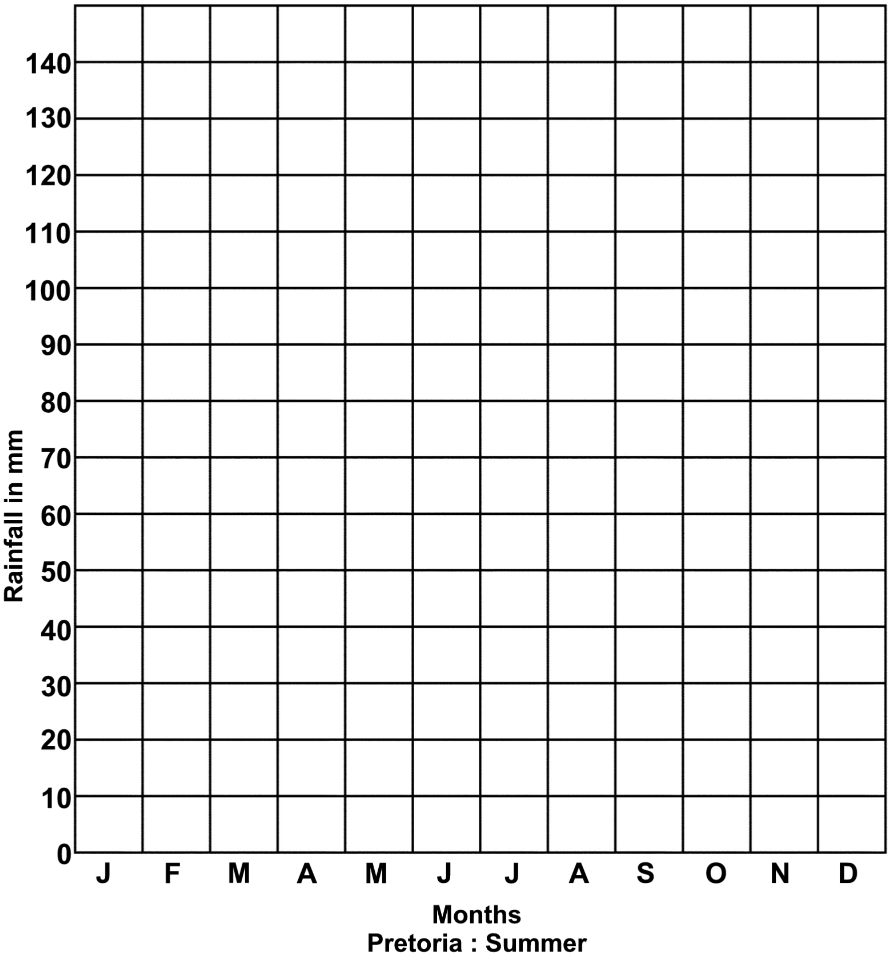


Figure 2.23

(i) Rain throughout the year

The area from the Breede River to Port Elizabeth gets the same amount of rain throughout the year. This varies between 500 and 1 000 mm per year. The region runs further up the coast up to the KwaZulu-Natal region, but here most of the rain falls in summer, although it rains in winter too.

The moisture-laden winds from the warm Mozambique and Agulhas currents are blocked by the escarpment and forced upwards. Condensation occurs and clouds on the seaward side of the escarpment cause the so-called relief rain.

Very thick natural forests occur in the southeast (Knysna). Indeciduous broad-leaved trees like yellowwood, stinkwood and blackwood trees are found here. Creepers like wild vines and many ferns and moss grow here in the dense shade of the gigantic trees. In the northeast the forests change to subtropical, with palm trees and mixed grasslands.

2.7.5.4 ACTIVITY 2:

2.7.5.5 TO RECORD THE RAINFALL FIGURES OF MOSSEL BAY GRAPHICALLY BY MEANS OF A BAR GRAPH

2.7.5.6 [LO 1.4; 1.7]

Record the rainfall information of Mossel Bay graphically in a bar graph below.

Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Rainfall in mm	72	85	90	65	60	50	55	68	80	90	95	80

Table 2.10

Graphic representation of rainfall for Mossel Bay

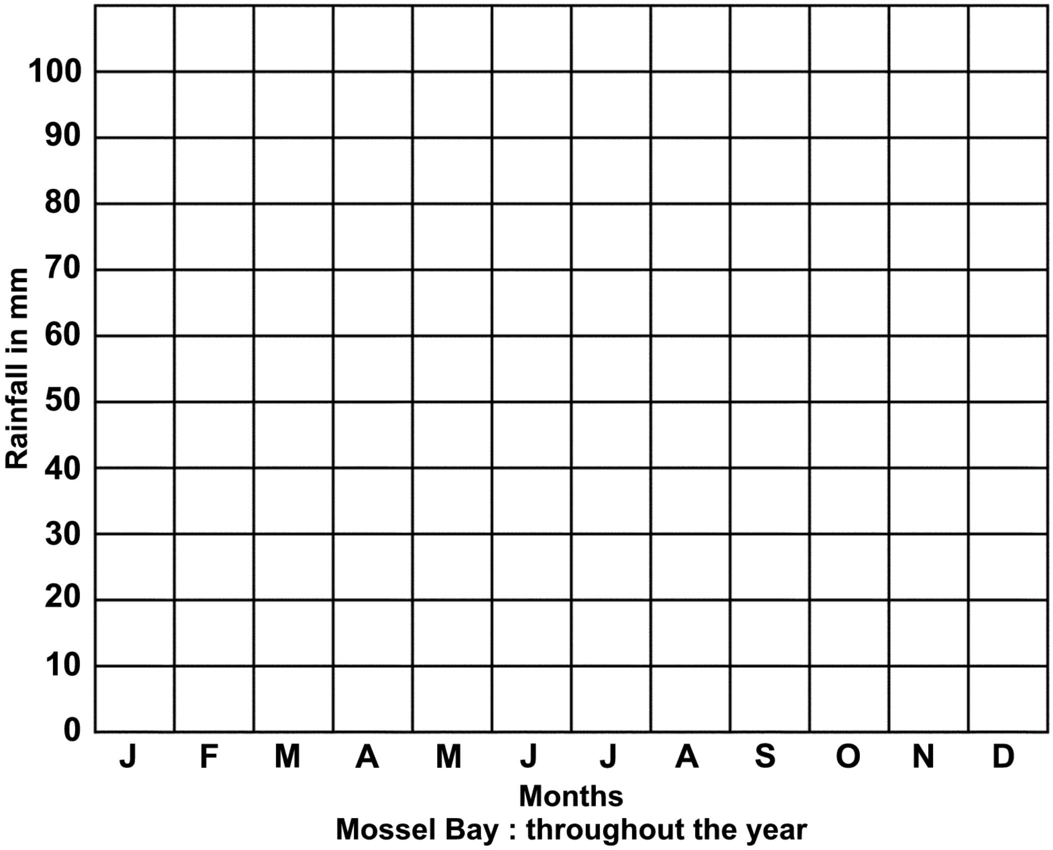


Figure 2.24

(i) The dry regions

The major part of our country is dry. Convection rain in the form of isolated thunderstorms does bring rain. Because it is so dry, there is little vegetation, and erosion in these areas is therefore a big problem.

In the half-dry regions like the Karoo the vegetation consists of low, grey karoo shrubs like guarri and rhenoster bush and hardy grasses. In the drier areas along the west coast sparsely distributed succulents occur. These succulents have thick, fleshy leaves to store water. Some of them can survive for years without water.

2.7.5.7 ACTIVITY 3:

2.7.5.8 TO COMPLETE THE FOLLOWING TABLE SO THAT YOU MAY HAVE A SUMMARY OF THE MOST IMPORTANT FACTS YOU HAVE LEARNT UNTIL NOW

2.7.5.9 [LO 1.1; 1.3]

Answer the questions that follow:

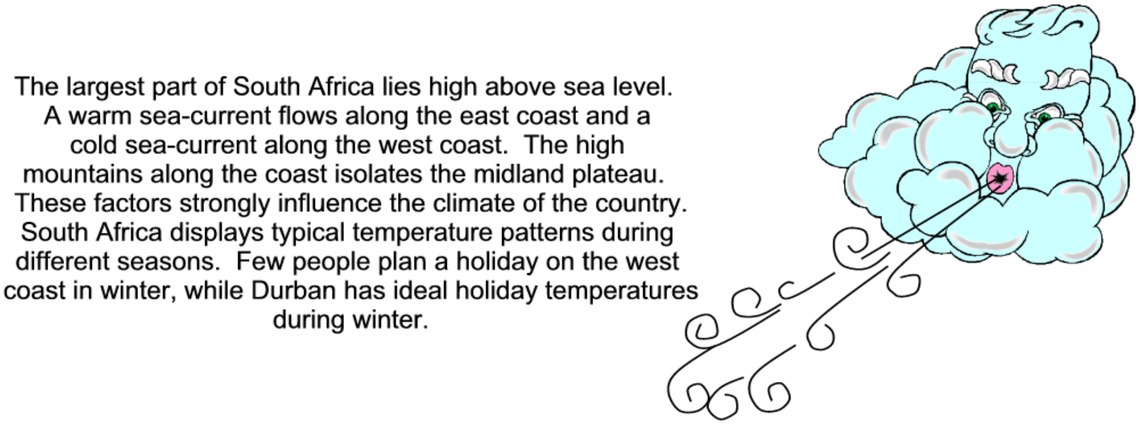
	Area where it rains	Type of rainfall	Amount of rain	Type of vegetation
• Winter				
• Summer				
• Throughout the year				
• Dry				

Table 2.11

Use the rainfall map on page 1 and your atlas to say which of the following towns/cities receive the most rain:

Durban or Bloemfontein
Port Nolloth or Port Elizabeth
Cape Town or De Aar
Mossel Bay or Pretoria

Read the following statement:



The largest part of South Africa lies high above sea level. A warm sea-current flows along the east coast and a cold sea-current along the west coast. The high mountains along the coast isolates the midland plateau. These factors strongly influence the climate of the country. South Africa displays typical temperature patterns during different seasons. Few people plan a holiday on the west coast in winter, while Durban has ideal holiday temperatures during winter.

Figure 2.25

- The average rainfall per year for the following places will give you an idea of this situation. Find the places in your atlas.

Durban 1 065 mm per year
Ficksburg: 680 mm per year
Kimberley: 402 mm per year
Pofadder: 142 mm per year
Port Nolloth: 50 mm per year
What can you deduce from this data?
The graphs below show the annual rainfall for two places in South Africa.

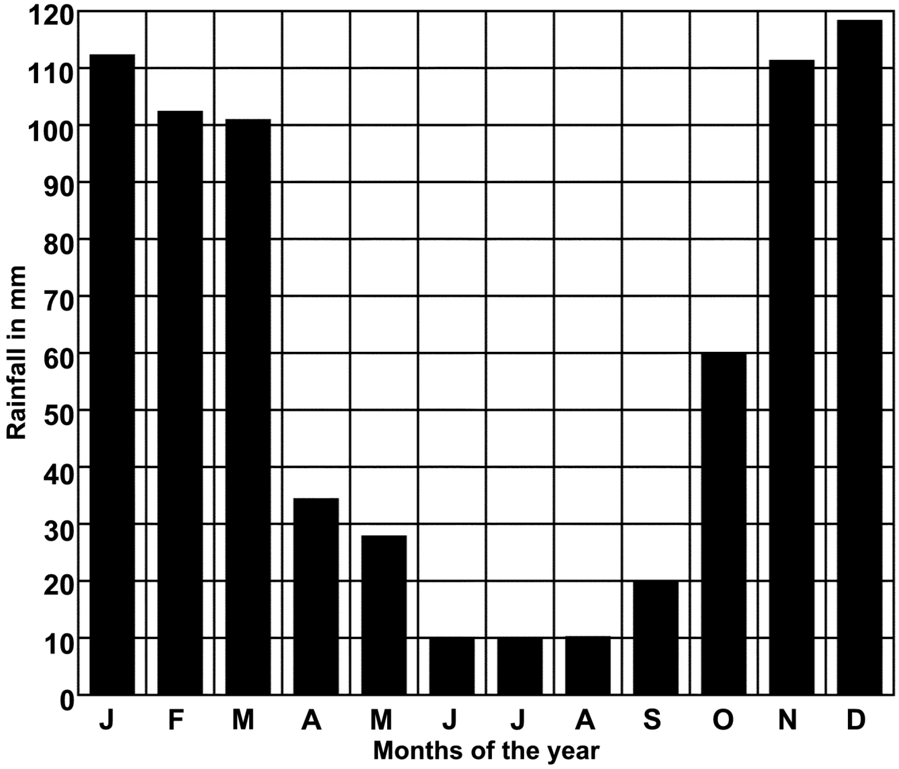


Figure 2.26

Bar Graph 1

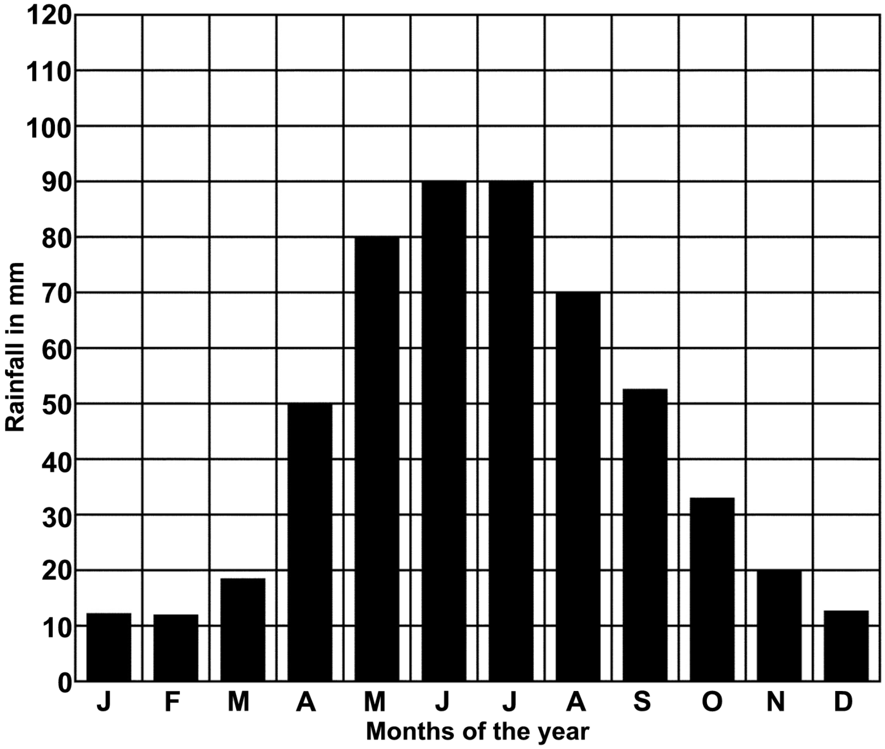


Figure 2.27

Bar Graph 2

- In what season does the most rain fall at each of the two places as depicted in the graphs?

Graph 1

Graph 2

- Would either of these places be suitable for successful maize farming? Maize requires summer rainfall of more than 400 mm per year.

- Do the graphs show any month with a rainfall of less than 30 mm?

2.7.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

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- distinguishes between facts and opinions [works with sources];
- categorises information [works with sources];
- draws sketch maps and/or plans from field observation and measurements [works with sources];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

2.7.7 Memoradum

ACTIVITY 3

- Durban
- Port Elizabeth
- Cape Town
- Mossel Bay

- Drier towards the west

- S
- W
- Yes

2.8 climate regions[8]

2.8.1 GEOGRAPHY

2.8.2 Grade 5

2.8.3 CLIMATE AND VEGETATION REGIONS OF SOUTH AFRICA

2.8.4 Module 14

2.8.5 CLIMATE REGIONS AND SUMMARY

When we have taken all these climatic elements into consideration and see how they feature in South Africa, we can divide the country into different climatic regions. A map is ideal to depict the regions.

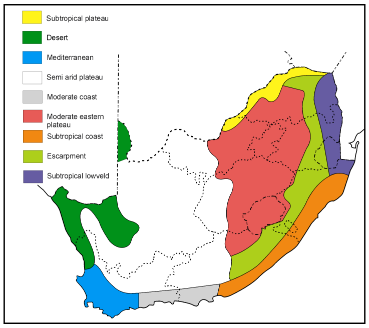

Figure 2.28

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[8] This content is available online at <http://cnx.org/content/m22273/1.1/>.

Climate regions in South Africa

Summary

We are now going to make a stimulation summary of the facts that we have learnt up to now to remember them better.

What are the characteristics of a good summary?

Words must be used economically (just phrases).

Main points must stand out.

This limits the facts that you have to remember.

The facts are organised neatly and orderly.

How do you go about making such a stimulation summary?

It is actually very similar to a mind map:

Read through the piece quickly again to get an overall idea of what it is about.

Then read it carefully and make sure that you understand everything. (Ask your teacher if necessary.)

Take a ruler and a pencil and underline just the core words – only one or two words at a time.

Write down the core word of the sub-heading and just the core phrases that you have underlined below it.

Check your own summary to see if you understand everything.

You must be able to rebuild some of these phrases into your own sentences.

Example:

PHYSICAL STRUCTURE OF THE RSA

Coastline

Land and sea meet

RSA: few harbours – this causes regular coastline

Norway: broken coastline

Coastal plain

Low regions at coast

RSA narrow

SW Cape and Natal widest

Make a similar summary of the climate of South Africa.

2.8.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

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- categorises information [works with sources];
- draws sketch maps and/or plans from field observation and measurements [works with sources];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

2.8.7 Assessment

LO 2

GEOGRAPHICAL KNOWLEDGE AND UNDERSTANDING

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

We know this when the learner:

2.1 identifies and describes major physical features of South Africa, including those of the home province [people and places];

2.2 identifies links between natural resources and economic activities in South Africa [people and resources];

2.3 describes ways in which the physical environment influences human activity and how human activity is influenced by the physical environment [people and the environment].

2.9 Vegetation[9]

2.9.1 GEOGRAPHY

2.9.2 Grade 5

2.9.3 CLIMATE AND VEGETATION REGIONS OF SOUTH AFRICA

2.9.4 Module 15

2.9.5 VEGETATION REGIONS OF SOUTH AFRICA

- The vegetation of a region is influenced by the temperature and rainfall of the region. As in the case of climatical regions, there are also different vegetation regions. People adapt to the vegetation that is found in their immediate environment. Farmers depend on the vegetation and climate when they have to choose a type of farming. Certain plants are better suited to a particular climate than others, while certain natural vegetation can serve as food for certain types of animals.

The following map shows the main vegetation regions in South Africa.

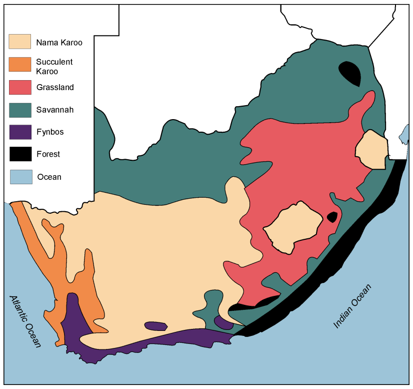

Figure 2.29

Vegetation regions in South Africa

Nama-Karoo

- very large region
- very dry
- summer rainfall region

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[9] This content is available online at <http://cnx.org/content/m22274/1.1/>.

- vegetation: small with woody stems and small leaves (needs little water)
- animals: springboks and other game (walk long distances in search of water)
- sheep and goats able to survive
- farms big enough for sufficient food and water
- economical: farmers
- water scarce – often boreholes

Succulent-Karoo

- along the West Coast
- summers very hot with little rain
- winter rain (sparse)
- mist from the sea supplies moisture for plants
- vegetation: water is stored in leaves and stems (succulents)
- soil not fertile and unsuitable for large scale farming
- economical: people depend on the sea as a source of income (fish)
- economical: floral abundance in spring (tourists an important source of income)

Grassland

- very large region (from Limpopo to Kalahari – includes Bushveld)
- vegetation: very large variety (grass, bush, trees)
- grass short and grows among trees
- trees hardy (umbrella shaped – offers shade to animals)
- animals: very wild (elephants, rhinoceros, giraffes, antelope)
- cattle in abundance – ideal grazing
- economical: many game farms (some for hunting, other for tourists)
- drawback: many tsetse-flies

2.9.5.1 ACTIVITY 1:

2.9.5.2 TO READ MORE ABOUT THE TSETSE-FLY AND THE HARMFUL INFLUENCE IT HAS ON THE PEOPLE AND ANIMALS IN A REGION

2.9.5.3 [LO 1.7]

Write a short paragraph on this topic.

Savannah

- large areas of the Free State, interior of KwaZulu-Natal and the Eastern Cape
- summer rainfall – thunderstorms and hail
- winter – very cold with frost
- vegetation: few trees due to cold winters
- tall and short grass
- economical: farmers frequently plant maize in the place of the grass

Fynbos

- Mediterranean rainfall region
- summers – hot and dry (bore-holes for irrigation)
- winters – cold and wet
- vegetation: leaves small and fine – retains water in summer and does not freeze easily in winter
- evergreen
- economical: rich soil (fruit farming – mostly grapes)

- best wines produced in this region

Forests

- spread across South Africa (only 1% of the area of the country)
- Knysna, KwaZulu-Natal, Mpumalanga
- only where the rainfall is high
- Vegetation: trees not very high – attractive trees, ferns and orchids
- animals: beautiful birds
- danger: trees are uprooted for firewood, medicine, building material
- plantations foreign and a threat to our indigenous forests

2.9.5.4 ACTIVITY 2:

2.9.5.5 TO DEBATE A STATEMENT

2.9.5.6 [LO 1.2; 1.7]

Debate the following statement. Divide the class in two groups. One group debates in favour of the statement, and the other against the statement.

"FOREIGN PLANTATION MUST BE ENCOURAGED BECAUSE IT WILL CREATE JOB OPPORTUNITIES, AND IT WILL BE USEFUL TO THE INHABITANTS OF SOUTH AFRICA."

Oceans

- of our most attractive plants below the surface of the sea
- west coast: bamboo forests (habitat for many marine species)
- economical: west coast water (natural source) = rich in plankton = abundant fish = many fishermen
- economical: east coast – coral reefs (home of many plant and fish species – tourists (scuba diving)
- economical: exotic foods such as mussels, oysters, crayfish, abalone (perlemoen) important source of income

2.9.5.7 ACTIVITY 3:

2.9.5.8 TO EXPLAIN ONE WAY OF CATCHING FISH

2.9.5.9 [LO 1.1; 1.7]

Investigate a method of catching fish and explain it to the class.

2.9.6 Assessment

LO 1

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LO 2

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We know this when the learner:

2.1 identifies and describes major physical features of South Africa, including those of the home province [people and places];

2.2 identifies links between natural resources and economic activities in South Africa [people and resources];

2.3 describes ways in which the physical environment influences human activity and how human activity is influenced by the physical environment [people and the environment].

Chapter 3

Term 3

3.1 Natural resources: Plants[1]

3.1.1 GEOGRAPHY

3.1.2 Grade 5

3.1.3 RESOURCES

3.1.4 Module 16

3.1.5 NATURAL RESOURCES: PLANTS

Make use of what you have learnt previously to try to complete the following definition concerning NATURAL RESOURCES.

People need natural resources such as plants,......................................,

soil, ... and water to survive. All of this is obtained from

nature. Examples of fossil fuels are gas and coal while minerals such as salt, rocks, gold, silver, iron and calcium are formed in the earth by nature.

3.1.6 ACTIVITY 1:

3.1.7 TO IDENTIFY RESOURCES

3.1.8 [LO 1.3]

Study the sketch of a production line for the manufacturing of cars and list the natural resources that you think may be necessary for the production of a modern motor vehicle.

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[1] This content is available online at <http://cnx.org/content/m22291/1.1/>.

Figure 3.1

Natural resources:

Are you able to think of other resources besides natural resources that are also
utilised in the production of cars? (Take another look at the sketch on page 1.)

Utilisation of natural resources by our predecessors

Our predecessors and the people of early civilisations were very aware of their dependence on natural resources. From the earliest times, people settled where they had access to food and water. They lived as nomads, wandering around in search of grazing, food and water. In time they became farmers and settled down for longer periods of time in places where the natural resources were adequate. Eventually people discovered mineral resources, e.g. iron and copper. This made it possible to produce objects for adorning themselves and for domestic wares, as well as weapons like arrowheads that helped them to hunt animals for food and defend themselves against their enemies.

Although we are less aware of our dependence on natural resources, we do need many different resources for our survival.

1. Plants as a natural resource

3.1.9 ACTIVITY 2:

3.1.10 TO LISTEN TO THE USES OF NATURAL RESOURCES

3.1.11 [LO 1.2; 1.3]

Competition time! See who is able to draw up the longest list of **uses of plants as a natural resource**.

Forestry as a natural resource

Forestry is the important resource that enables you to write and communicate successfully day after day. For this, thousands of trees are felled every day, merely to produce enough paper to produce daily newspapers. Although people plant plantations, they are better suited to some climatic regions than to others and are therefore spread out across the country.

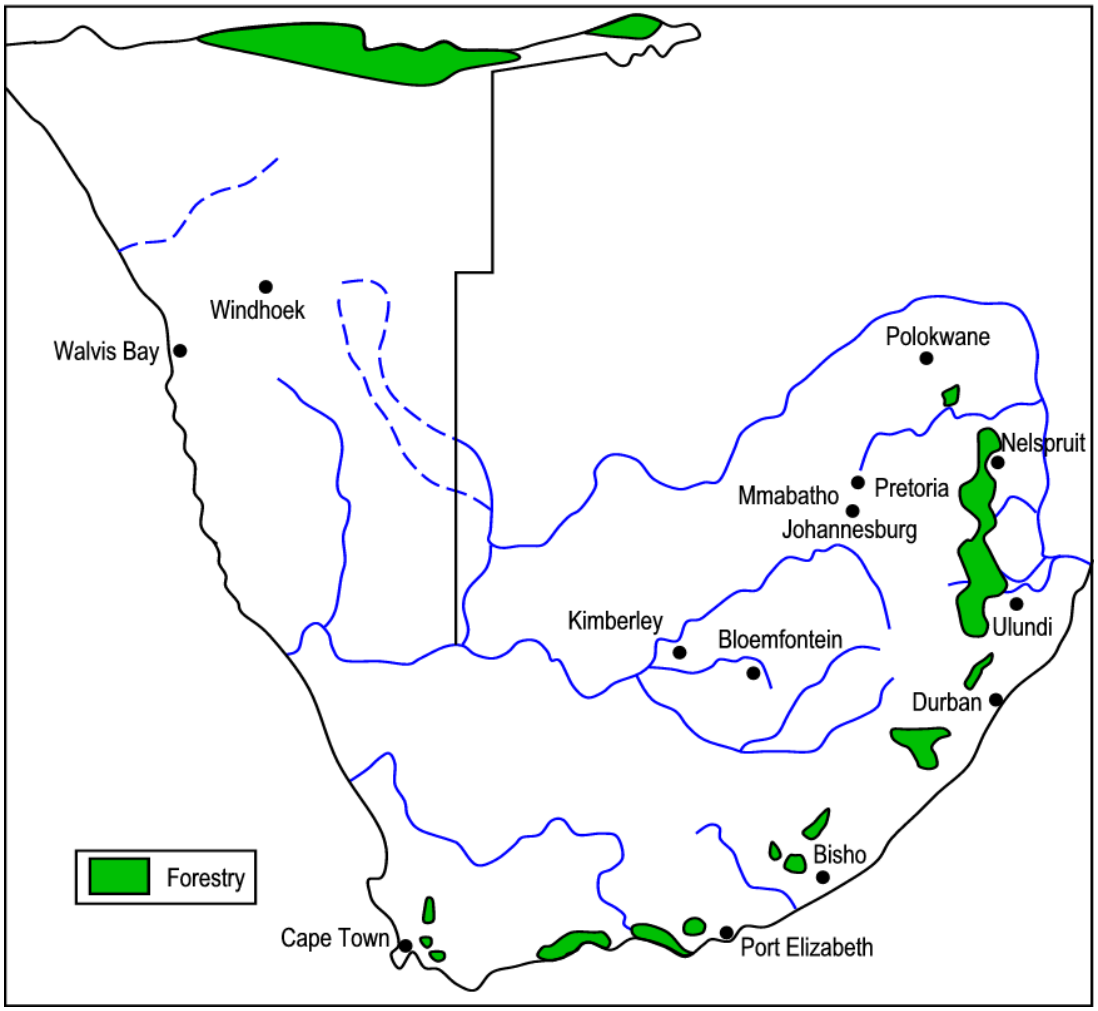

Figure 3.2

Forestry in South Africa and Namibia

3.1.12 ACTIVITY 3:

3.1.13 TO INVESTIGATE PRODUCTS THAT ARE DERIVED FROM WOOD

3.1.14 [LO 1.1]

- Investigate every room in the school through which you move and make a list of all the products/articles that are made of wood.

3.1.15 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

- distinguishes between facts and opinions [works with sources];
- categorises information [works with sources];
- uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

3.1.16 Memorandum

Natural resources:

- Sun
- Air
- Plants
- Animals

ACTIVITY 1

- Rubber
- Steel
- Animals
- Fuel
- Glass (sand)

- Human resource – energy, technology

ACTIVITY 3

- Cupboard
- Chair
- Table
- Stepladder
- Bench
- Ruler
- Pencil
- Shelf
- Door
- Window frame

3.2 Natural Resources: Animals[2]

3.2.1 GEOGRAPHY

3.2.2 Grade 5

3.2.3 RESOURCES

3.2.4 Module 17

3.2.5 NATURAL RESOURCES: ANIMALS

Animals as a natural resource

3.2.6 ACTIVITY:

3.2.7 TO ANSWER QUESTIONS ABOUT CHICKENS AS A NATURAL RESOURCE

3.2.8 [LO 1.1]

You made a thorough study of poultry farming while you were in Grade 4. Use what you have learnt earlier and also consult alternative sources to help you answer the following questions.

Name the products derived from chickens and used by people.

True / False? "The flesh of chickens provides a healthy foodstuff." (Motivate)

Does poultry farming represent an important global economic activity? Motivate your answer.

Is the practice of poultry farming determined by climate? Motivate.

Which health risk puts the continuation of poultry farming at risk in particular regions from time to time?

Animals do not provide people with food alone. Ostrich farmers are proud of the fact that every part of this giant bird is used profitably. Discuss the uses of the different parts of the ostrich in your groups.

3.2.9 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

1.2 distinguishes between facts and opinions [works with sources];

1.3 categorises information [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

3.2.10 Memorandum

- Meat Eggs Feathers
- Truer – white meat – low in animal fat, high in proteins
- Produced in large quantities to comply with needs Job creation

---

[2] This content is available online at <http://cnx.org/content/m22296/1.1/>.

- No – a battery creates artificial favourable conditions
- Avian influenza

3.3 Natural Resources: Minerals[3]

3.3.1 GEOGRAPHY

3.3.2 Grade 5

3.3.3 RESOURCES

3.3.4 Module 18

3.3.5 NATURAL RESOURCES: MINERALS

Minerals as a natural resource

South Africa has large deposits of minerals like gold, iron, coal, platinum and diamonds. The map on the next page shows that these South African minerals are concentrated in the north-eastern part of the country. Coal and gold make up a large proportion of our country's mineral wealth.

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[3] This content is available online at <http://cnx.org/content/m22302/1.1/>.

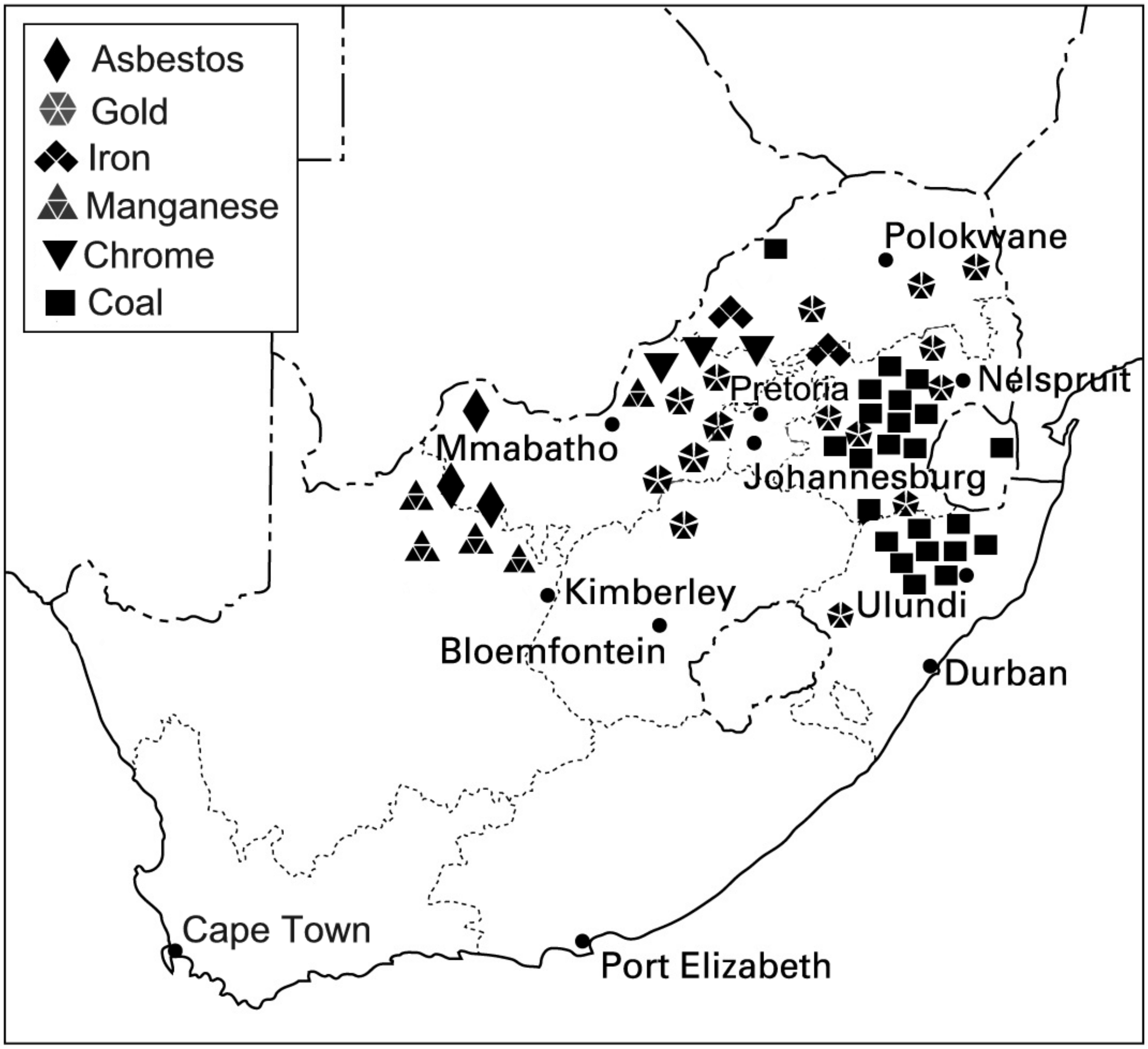

Figure 3.3

Minerals in South Africa

Some of these minerals are mined at the surface (diamonds), while others are mined deep below the surface under extremely dangerous conditions.

Iron, which is a basic component in the production of steel, is less abundant. Melting iron ore and other minerals together in large furnaces manufacture steel. Flat steel plates are manufactured during this process. Later on, these steel plates are used to manufacture other products. Steel is a very important component of the modern manufacturing process. Just consider the car that was referred to earlier in the module. Without steel, there would be no motor vehicle production line.

There are two methods of mining:

- open mining;
- tunnel mining.

Minerals like iron, copper, asbestos and diamonds are sometimes mined from open cast mines. These simply are large open holes in the earth that are dug in such a way that a spiralling road leading to the deepest part of the mine is formed. This means that vehicles that transport ore and materials to the places where they are processed can be driven to every part of the mine.

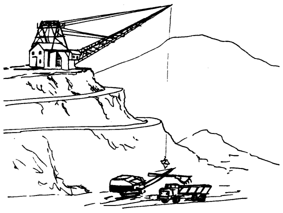

Figure 3.4

When minerals are found deep under the ground, a **shaft** has to be built. Mine **headgear** is erected and a deep hole is drilled into the earth. Shaft diggers (sinkers) dig **side passages** and **tunnels** from this hole (shaft). This enables the miners to reach the **reefs** or veins containing the minerals. These passages and tunnels are situated on different levels.

The minerals are blasted loose with dynamite and are then dug out. The "gravel" is loaded into iron buckets (cocopans), which run along a rail like a train and are hoisted to the surface of the earth in **lifts** for the minerals to be processed. Excess rock is dumped on **mine dumps** and the watery remains are taken to **sludge dams**.

3.3.6 ACTIVITY:

3.3.7 TO SUPPLY A DIAGRAM WITH CAPTIONS

3.3.8 [LO 1.1]

- Consult the preceding paragraphs and supply this illustration of a cross-section of a shaft mine with the necessary captions.

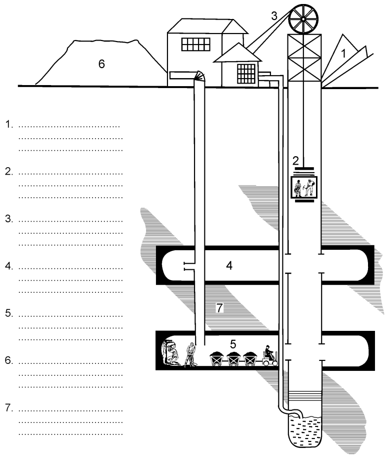

Figure 3.5

-

3.3.9 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

1.2 distinguishes between facts and opinions [works with sources];

1.3 categorises information [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

3.4 Human resources: services[4]

3.4.1 GEOGRAPHY

3.4.2 Grade 5

3.4.3 RESOURCES

3.4.4 Module 19

3.4.5 HUMAN RESOURCES: SERVICES

People and the services that they render

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[4] This content is available online at <http://cnx.org/content/m22306/1.1/>.

People exchange their labour for money (salaries) on a daily basis and are therefore also regarded as a resource. The physical, intellectual and spiritual capacities of people are used to develop and distribute products and services.

Figure 3.6

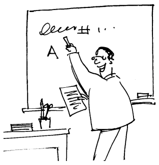


Figure 3.7

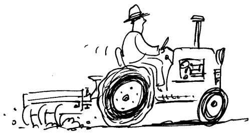


Figure 3.8

What did you have for breakfast this morning? Was it a sandwich, porridge or eggs? Or did you have fish? Did you have tea, coffee or juice or only water? Think of all the possibilities…… the breakfast that each child had might perhaps be different from those that any of the others had!

The food you ate might have differed, but the similarity is that resources and people were used to get the food to you, and that the food and the people were transported.

3.4.6 ACTIVITY 1:

3.4.7 TO ANALYSE A FOOD SOURCE ACCORDING TO NATURAL RESOURCES USED DURING PRODUCTION

3.4.8 [LO 1.1; 1.7]

- Consider anything that you have eaten for breakfast and analyse it according to the table provided below.

My foodstuff: ______________________________

Natural resources required for manufacturing.	People (jobs or occupations) and services required for the manufacturing and transport of the product to my home.

Table 3.1

Just like the resources were divided into three groups, people's activities are also divided into three groups.

Group 1: Primary activity	Group 2: Manufacturing	Group 3: Services			
People cultivate the original product or take it from nature.	People take the product from the first group and process it in factories.	People render services like transporting, selling or marketing the products of the first two groups.			

continued on next page

Examples	Examples	Examples			
farmingfishingminingforestry	makingclothingcanning fishmaking steelmaking furniture	tradetransportbanking servicesmunicipal servicesschools			

Table 3.2

Are you able to add to these examples?

(Remember this: These are a few examples only! A complete list would be very long.)

3.4.9 ACTIVITY 2:

3.4.10 TO CATEGORISE OCCUPATIONS

3.4.11 [LO 1.3]

Expand the three groups of jobs above yourself. Decide in which group the jobs below fall and write only **primary**, **manufacturing** or **service** next to them.

1. traffic officer
2. nurse
3. machinist on fishing boat
4. selling fertiliser to farmers
5. working as a book printer
6. cameraman (television)

Now do the same with your mother's or father's job:

... and the job that **you** want to do one day?

3.4.12 ACTIVITY 3:

3.4.13 TO IDENTIFY EXAMPLES OF HUMAN RESOURCES IN THE ENVIRONMENT

3.4.14 [LO 1.3]

- Discuss this with your educator or your parents and try to find examples of the following types of human resources in your immediate environment.

Businesses where primary products are **supplied:**

Businesses where goods are **manufactured:**

Businesses that mainly render **services:**

Be careful……..

You should just remember that one business can sometimes be involved with more than one of the three groups of activities, sometimes with all three.

3.4.15 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

1.2 distinguishes between facts and opinions [works with sources];

1.3 categorises information [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

3.5 Production and industry[5]

3.5.1 GEOGRAPHY

3.5.2 Grade 5

3.5.3 RESOURCES

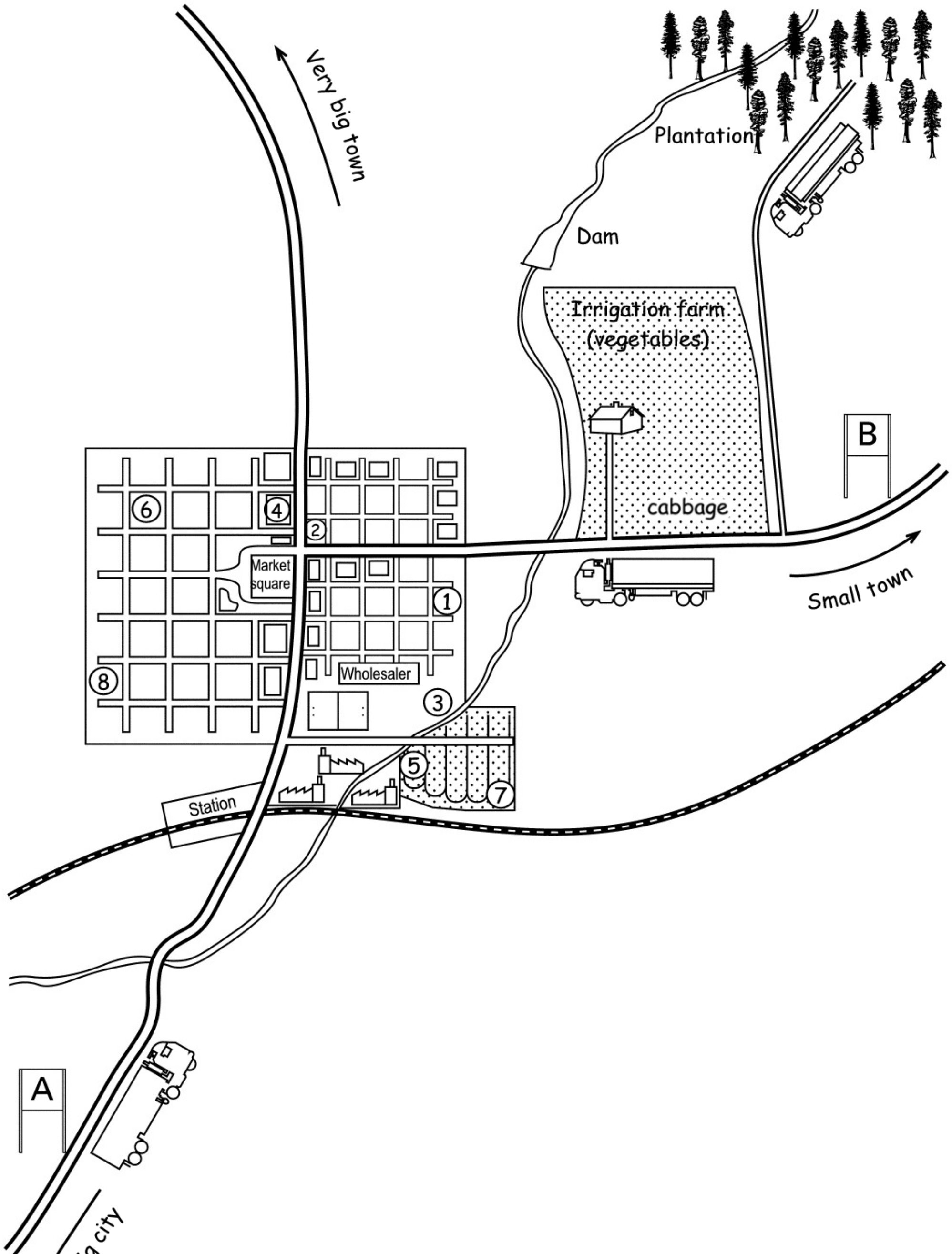
3.5.4 Module 20

3.5.5 HUMAN RESOURCES: PRODUCTION AND INDUSTRY

3.5.6 ACTIVITY 1:

3.5.7 TO IDENTIFY PATTERNS IN A TYPICAL PRODUCTION LINE

3.5.8 [LO 1.3]



Study the map and answer the questions by underlining the correct words between brackets :

1. The large truck (15 tons) takes the cabbage to the market in the (big city/small village).
2. The truck with 8 tons of groceries goes to the (wholesaler in the town/farm store).
3. The truck from the plantation takes the load of wood to the (sawmill in the town/irrigation farm) where wooden crates are made for vegetables.
4. The best place for a filling station is at (1/2).
5. The biggest and best stores are at (3/4).
6. Unfortunately the noise of the factories disturbs the people at 5/6).
7. The people at (7/8) walk far on Saturdays to get to the stores.
8. There are (more/fewer) cars and trucks on road A than on road B.

3.5.9 ACTIVITY 2:

3.5.10 TO INVESTIGATE POSSIBLE CAUSES AND RESULTS WITH ACCOMPANYING SOLUTIONS

3.5.11 [LO 1.6]

Thinking assignment

Accidents often happen to people who are involved in transporting resources. A train is used for transport, and what else except resources can be transported? People or general freight, or coal, or iron ore, or wheat…

Have you heard of a train that has derailed, and that the accident has been described as a train disaster? The consequences are always bad and cause great damage. People can die or get badly hurt, the train and railway lines are damaged extensively, and one can continue the list.

Read the newspaper article, look at the railway line on the map (figure 1) and think about the consequences of such a big train disaster. Then answer the questions.

TRAIN DISASTER IN NORTH CAN HAVE SERIOUS CONSEQUENCES

Regional reporter

Pretoria: A goods train with large quantities of diesel, toxins and general freight was derailed between Mussina and Polokwane two nights ago. The train bridge across the Sand River was extensively damaged and the railway line will be closed for about six weeks.

The diesel in the twenty tanks caught fire and the toxins seeped into the river. The rest of the freight was also destroyed.

Mr Mike Smit of Spoornet said that rail traffic between South Africa and Zimbabwe would be diverted through Botswana for the next few weeks. This is a detour of about 300 kilometres. Spoornet would bear the additional costs.

The veld fire that broke out is still raging in the thick bush. It is difficult for fire fighters to reach the fire in the mountainous region.

An investigative team from the Department of Nature Conservation leaves Pretoria today to visit the scene of the disaster to investigate the consequences the disaster will have for the environment. The team particularly wants to find out whether there is a link between the large number of fish that died in the Sand River and the toxins that landed in the water.

Describe the possible damage and consequences:

- Injuries to people and the consequences over a long period:
- Spoornet's damage:
- Damage to the environment:
- What do you think might have caused such a disaster?

Have another look at the map on page 14 and answer the questions:

- What type of crossing would be the best where the railway line and road A intersect at the station?

- What golden safety rule can you make for the children in area 7?

- You are the first person to see a train disaster that occurs. Name three groups of people that you would report the accident to first.

3.5.12 ACTIVITY 3:

3.5.13 TO DO A CASE STUDY TO ILLUSTRATE THE WAY IN WHICH NATURAL AND HUMAN RESOURCES ARE INTERRELATED IN THE ECONOMIC PROCESS

3.5.14 [LO 1.4; 1.7]

- Study the sketches that explain the steps of production for manufacturing canned peaches and compile a flow diagram to illustrate your understanding of the process. Differentiate between natural and human resources.

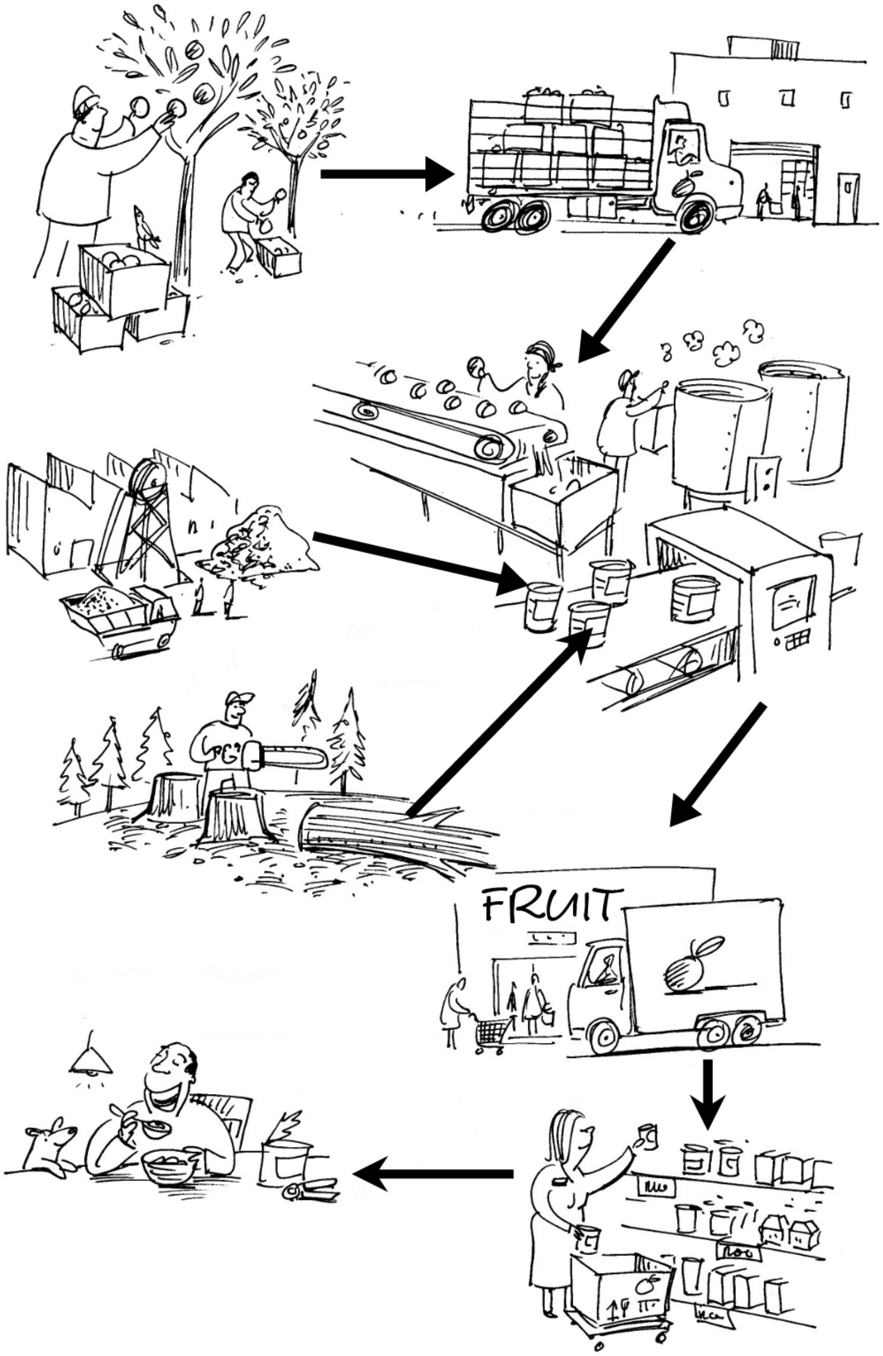


Figure 3.10

3.5.15 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

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1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

3.5.16 Memorandum

ACTIVITY 2

- Medical claims, new person trained, pay-out to family in case of death
- Loss of freight, damage to railway lines and train, additional cost for detour
- Plants and animals die Water flows into the sea – more deaths Fire damage – plants and animals Air pollution
- Sabotage

- Bridge / subway
- Don't play near a railway line or cross it at an unprotected crossing

ACTIVITY 3

- Peach orchard (N)
- Pick (M)
- Package (M)
- Crate (M)
- Transport (M)
- Sort (M)
- Wash (M)
- Water (N)
- Process (N)
- Tin (Iron) (N)
- Label (Paper) (N)
- Distribute (M)
- Sell (M)
- Eat (M)

3.6 Resources and wealth[6]

3.6.1 GEOGRAPHY

3.6.2 Grade 5

3.6.3 RESOURCES

3.6.4 Module 21

3.6.5 RESOURCES AND WEALTH

- Research has shown that Gauteng is the wealthiest province in South Africa, with KwaZulu-Natal coming second. The Western Cape comes third. The wealth of a town / province / country is measured by the total amount of money that all the factories, mines and business enterprises earn when their products are sold. If we take another look at the map on page 7, which shows the distribution of minerals in South Africa, it is easy to understand why Gauteng and KwaZulu-Natal are first and second. Almost all of the mineral wealth of our country is concentrated in these two provinces.

What does the Western Cape have in the place of mineral wealth?

What makes it wealthy?

(a) Fertile soil and regular winter rains make **agriculture** the single largest source of income for the province.
(b) People working in many **factories** process natural resources from their own environment, from other provinces and from abroad.
(c) **Tourism** is another important source of income. It is the beaches, the natural beauty and the cultural treasures of Cape Town and its surroundings that attract both South African and foreign tourists to the Western Cape.
(d) Resources can only be utilised if there are people to do it. Ninety-four percent of the people of the Western Cape are literate. This means that they can easily be trained to do new / different work. (In Gauteng, 92% of the people are literate and in the Eastern Cape 72% are.) The **well-trained people** of the Western Cape therefore form a fourth important resource.

It is very advantageous for a country if its products can be exported to other countries. Most agricultural products, especially fruit and processed fruit, are exported, as well as many other products that are manufactured in factories.

Many tourists also come from abroad. One could say that the Western Cape "exports its natural beauty".

3.6.6 ACTIVITY 1:

3.6.7 TO MARKET MY TOWN AS A TOURIST ATTRACTION

3.6.8 [LO 1.7]

Collect pamphlets, news reports and photos of interesting things in your environment.

Do research on the tourist attractions of your town or area and write a brief information sheet that can be given to prospective visitors or tourists.

Draw a simple sketch map of the route to the attractions in your town. (Remember what you have learnt about map work and apply that knowledge now.)

Group work

What can be done to improve tourism to your town or area? Try to make three suggestions.

The ten main export industries of the Western Cape (year 2000)

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[6] This content is available online at <http://cnx.org/content/m22310/1.1/>.

	(R million)	Percentage
Fresh fruit	2 240	15,25
Wine and spirits	1 600	10,00
Fish	1 300	8,18
Iron and steel products	1 100	6,88
Processed fruit and vegetables (e.g. fruit juice)	1 020	6,38
Explosives and related products	720	4,50
Jewellery and processed semi-precious stones	430	2,69
Clothing	410	2,56
Leather and leather products	400	2,50
Textiles	390	2,44
The rest: is a large number of smaller categories **	6 190	38,67
Total	16 000	100,00

Table 3.3

** Among the smaller categories of products are boats, plastic goods, electronic equipment, furniture, meat and chemicals.

Let's examine the list of export products:

What percentage of products from the Western Cape is derived directly or indirectly from the fruit industry?____________________________%

Underline the correct answer: The main reason for the high percentage of income from fruit can be found in (the climate / imported resources).

Agriculture as an important employer

Agriculture is very important as a provider of work in the Western Cape. Approximately 163 000 people are employed on farms. Together, they earn about R 180 million per month, while supporting about 700 000 dependants. Agriculture also provides a large amount of produce to factories where it is processed. This provides further job opportunities. There are many factories in which equipment and other aids for farming are produced. This also provides more work.

Unfortunately developments in agricultural technology also exact a toll. Because more machines are used in production, about 5 000 jobs on farms have been lost between 1997 and 2001.

3.6.9 ACTIVITY 2:

3.6.10 TO INVESTIGATE THE SOCIAL PROBLEMS THAT RESULT FROM UNEMPLOYMENT

3.6.11 [LO 1.6; 2.2]

Form groups for discussing the social problems that stem from unemployment. Also try to collect news reports on this issue and discuss them in class. Then write a short paragraph on this problem.

Make suggestions for solutions to the problems of unemployed people.

3.6.12 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

1.2 distinguishes between facts and opinions [works with sources];

1.3 categorises information [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

LO 2

GEOGRAPHICAL KNOWLEDGE AND UNDERSTANDING

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

We know this when the learner:

2.2 identifies links between natural resources and economic activities in South Africa [people and resources];

2.3 describes ways in which the physical environment influences human activity and how human activity is influenced by the physical environment [people and the environment

3.6.13 Memorandum

ACTIVITY 1

EXPORT PRODUCTS:

- 31,63%
- Climate

ACTIVITY 2

- Gangster activities – drugs, theft, violence
- Frustration – family violence

3.7 Renewable/non-renewable water[7]

3.7.1 GEOGRAPHY

3.7.2 Grade 5

3.7.3 RESOURCES

3.7.4 Module 22

3.7.5 RENEWABLE / NON-RENEWABLE: WATER

Resources that cannot be used up are called renewable.

Resources that can be used up are called non-renewable.

- Some resources, like maize and wheat, can be cultivated season after season. If we use all we have, we are able to produce more, if necessary (it is renewable). Other resources, like coal, for instance, cannot be renewed (it is non-renewable). When all of the coal in South Africa has been used up, we'll have to make use of other sources of energy.

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[7] This content is available online at <http://cnx.org/content/m22316/1.1/>.

Rainwater that is caught in dams high in the mountains and then used to generate electricity is a renewable source. People cannot affect the rainfall through bad management. The only resources that are really renewable and can never be exhausted are the sun, the moon and the wind! All three are sources of energy.

We would not remain alive without energy. Energy is essential for heating, transport, cooking and for much more. Much energy is also used during the processing of resources and manufacturing of products. Most of our energy is obtained from non-renewable natural resources such as coal, natural gas and oil. When these fossil fuels have become depleted, it will not be possible to replace them.

1. WATER for generating electricity

Water cannot be used anywhere to generate electricity. A dam with a high wall must be built, preferably high in the mountains.

Like water sprays from a garden hose, a strong stream of water sprays in a pipe below the wall on a wheel that turns very quickly and then generates electricity. This is called a turbine. The electricity that is generated is called hydro-electricity. The word hydro means **water** or liquid. Very little hydro-electricity is generated in South Africa.

After the water has gone through the turbines, it is channelled in the ordinary way to cities and towns for drinking water, used for irrigation, or being pumped back into the dam.

2. Water shortage and possible solutions

Problems

It is a well-known fact that the larger part of the South African interior is hot and dry. Even in areas that have a good rainfall, the rain is seasonal and irregular.

Many of the rivers of the interior only flow during the rainy season in summer and the riverbeds are dry during the rest of the year. The flow of the rivers that are perennial also fluctuate; they have more water in summer, when it rains, but the water levels drop during the dry winter months. Waterfalls, rapids and sandbanks occur in the rivers because of the steeply sloping ground across which they flow, and this causes erosion of the land.

Because the rain falls during the hot summer months, about 90 percent of the rainwater is also lost due to evaporation.

The rain that falls in the interior occurs in the form of thunderstorms. This means that much rain falls to the ground in a short period of time. The rain has no time to soak into the ground, but flows to the rivers, causing serious damage by eroding the surface of the land. The amount of surface water decreases from the eastern parts of the country to the western parts in correspondence with the decrease in rainfall from east to west. Together with the decrease in surface water, we observe a decrease in vegetation. DROUGHTS occur regularly and this makes the problem worse. The shortage of water in South Africa stunts the growth of plants, animals and people. It is therefore becoming increasingly important to address this problem.

Rainfall distribution in South Africa

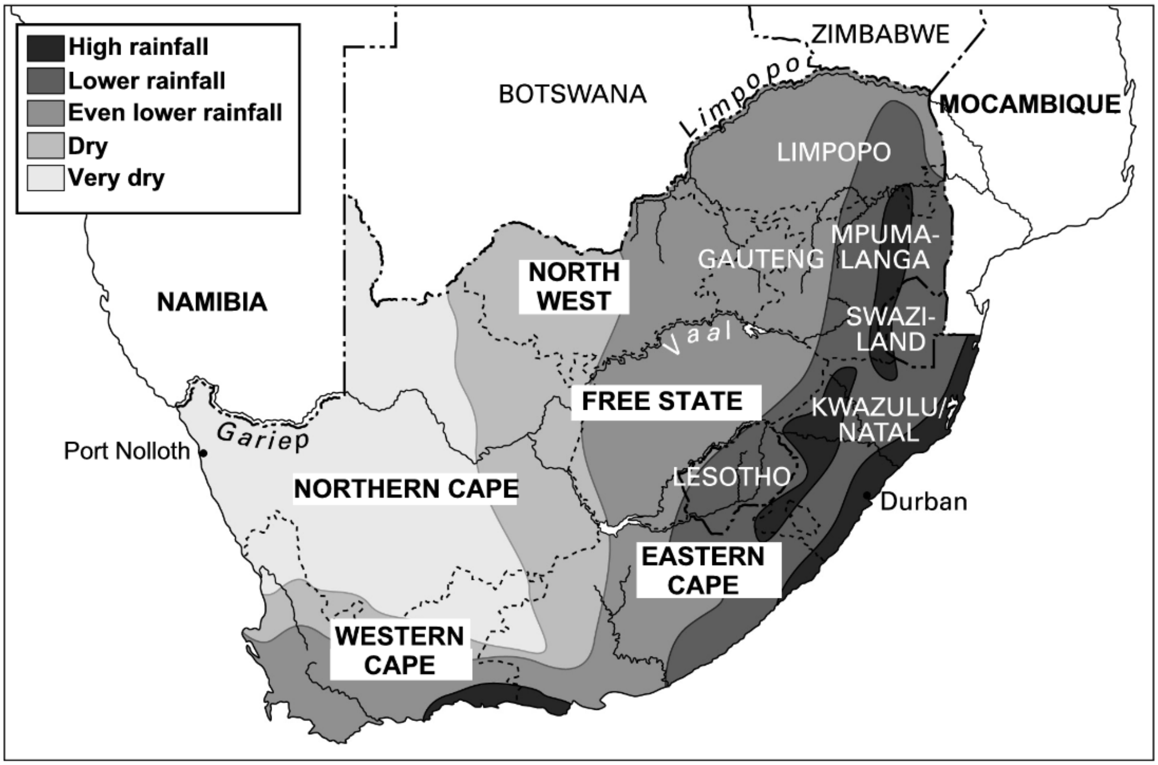

Figure 3.11

Large areas that have insufficient surface water

3. Solutions to the water shortage in the RSA

Underground water

You know that 90% of our rainfall either evaporates or runs off to the sea. Rainwater that does seep into the soil collects below the surface in the soil. It then seeps into underground rivers that are called underground watercourses. Sometimes they come to the earth's surface in a natural way and form fountains.

We use underground water by drilling boreholes or digging wells into these underground watercourses. A windmill or a power pump is then used to pump the water to the surface. We see this often on the farms in the Karoo. This water is used for drinking and for irrigation. The water is stored in farm dams above the ground next to the windmill. On the outside of the dam there is usually a drinking trough for the sheep and/or cattle.

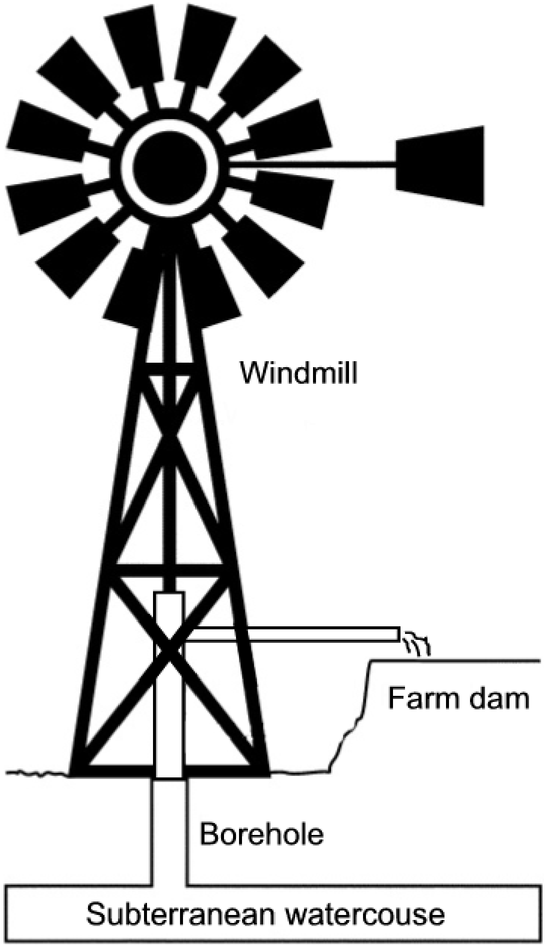

Figure 3.12

Figure 2: A windmill with a farm dam

We must guard against pumping out too much underground water, otherwise the level of this water (called the water table) will drop and have other negative consequences.

Irrigation

What is irrigation? It is the transporting of water through man-made ditches, canals and pipes. It increases the productivity of the soil. This means that more and better produce can be supplied than when the soil is not irrigated.

Farmers use different methods of irrigation.

- Flood irrigation

This is done when water is taken from farm dams in irrigation furrows to the fields. The water is then allowed to flood a piece of land to irrigate crops.

- Spray irrigation

Water is pumped out of the farm dam in pipes. These pipes are fastened to wheels about a metre above the ground and moved around. Spray heads on the pipes allow the water to spray over the fields like rain.

- Drip system or micro irrigation

Thin plastic pipes are laid along the ground. Drippers are mounted on these to drip or spray the water directly on the plant. Computers also mainly controls this type of irrigation.

Conserving water

Because our country is so dry and hot, it is important for rainwater to be stored during the rainy season. If this is not done, the rainwater flows away unused to the sea. This is why the previous government built large storage dams in the big rivers.

The building of such a storage dam is a long and expensive process. It is usually built where a river flows through a hilly area, so that a high dam wall can be built between two hills. This wall is a great half-moon-shaped construction in which floodgates are built to let the water through when necessary. If the floodgates are closed, the water collects behind the wall and pushes back in the river for kilometres. Unfortunately mud and silt quickly make the dams shallower.

Irrigation farms are usually not very big and the farmers therefore live close to one another. Such an area around an irrigation dam is called an irrigation scheme. The farmers can irrigate their farms for twelve months of the year, grow three crops a year and avoid the risks of droughts.

3.7.6

3.8 Renewable/non-renewable water[8]

3.8.1 GEOGRAPHY

3.8.2 Grade 5

3.8.3 RESOURCES

3.8.4 Module 23

3.8.5 SUN, MOON, WIND AND RECYCLING

3.8.6 The SUN as a resource

The energy that can be obtained from the sun (solar energy) is very difficult to understand. It is 9 000 times more than all the energy that is currently generated all over the world! And it cannot be used up!

Unfortunately, we do not yet know how to use solar energy on a large scale. The climate and the weather, and the fact that there is something like night and day, also have a great effect on the use of solar energy. Where solar energy can be used on a small scale, the technology is still also very expensive.

But there are ways of using solar energy. Solar panels can be used to heat water for houses, and solar cells can be used to generate electricity .

By the time you are grown up, someone might have discovered how to utilise the energy from the sun better. Perhaps one of you might have a share in such a wonderful discovery!

SORRY, THIS MEDIA TYPE IS NOT SUPPORTED.

3.8.7 The MOON as a resource

Perhaps it is a surprise to you to read that the moon is a resource for people! Just like the sun has 9 000 times more energy than we can generate, the moon has 100 times more energy to use.

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[8] This content is available online at <http://cnx.org/content/m22319/1.1/>.

You know that the moon causes tides in the sea, and by using the tides we can generate electricity. By building a closed bay with a sea wall with gates, the flow of the water can be used to generate electricity.

This method is used in very few places in the world, because there are still too many problems to be overcome.

3.8.8 The WIND as a resource

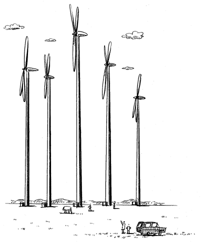

Figure 3.13

The wind has been used as a resource for many centuries. Think of the sailing ships, the Dutch who pump water back to the sea with their well-known windmills, the windmills on many farms in our country, and so on.

However, at the moment scientists are investigating the use of wind on a much larger scale. The ideal is that the wind should be used on a large scale to generate electricity. In the USA and Europe this type of project has been going on for a long time. In 2002 the first wind power station was constructed in South Africa. This was on the farm Windhoek between Darling and Yzerfontein on the West Coast. (Does the name of the farm say anything?)

3.8.9 ACTIVITY 1:

3.8.10 TO IDENTIFY AND INVESTIGATE POSSIBLE SOLUTIONS TO AN ENERGY PROBLEM

3.8.11 [LO 1.6]

It is the year 2010. A thorough investigation has been done and it was discovered that there would be just enough supplies of coal and crude oil left in the world for seven to ten years! What happens now? (Group work).

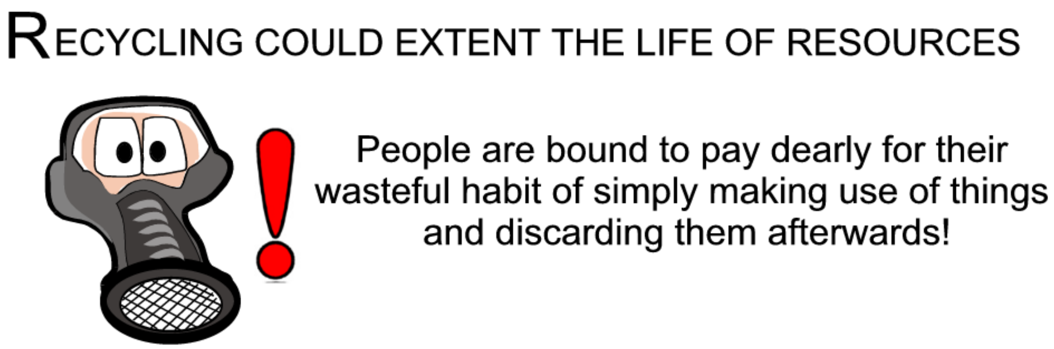
RECYCLING COULD EXTENT THE LIFE OF RESOURCES
People are bound to pay dearly for their wasteful habit of simply making use of things and discarding them afterwards!

Figure 3.14

- Newspapers
- Tins
- Plastic
- Glass
- Cardboard
- Magazines

We can just guess at how many **tons** of these materials land on refuse dumps in towns and cities every day!

Sometimes **non-renewable** resources are used to make these materials.**But who cares?**

Wood, a renewable resource, is used to make cardboard and paper for newspapers and magazines. It seems as if there is no problem with wood, but the plantations where enough trees are planted to provide enough wood every year use so much water from the soil that it causes problems in some places. Rivers and fountains are no longer being fed and nature and man are suffering. Wood must be saved!

Interesting....

Successful recycling also means smaller refuse dumps.

In some countries (e.g. Switzerland) residents are forced to sort their household refuse and place it in different coloured bags.

In the city of Curitiba in Brazil people can exchange their sorted household refuse for free bus tickets and vegetables.

Poor people in Africa produce only a fraction of the household refuse that rich Americans throw away.

Even if a poor family wants to recycle, their house is often so small that there is no room to keep the sorted household refuse.

3.8.12 ACTIVITY 2:

3.8.13 TO LAUNCH / MANAGE A RECYCLING PROJECT

3.8.14 [LO 1.6; 2.3]

For the learners at a school where a recycling project has already been started:

Find out what the school's average earnings per month are from the recycling project. Design an incentive system to increase these earnings.

For the learners at a school with no recycling project:

Phone a place close to you that recycles newspaper and find out what they pay per kilogram.

Measure the mass of a week's newspapers that a family receives and calculate what it would be worth.

Calculate how much money your school can make per year if only half the
families in the school bring their newspapers to school.

Write a letter to the principal and ask whether you can start a recycling project.

Explain the benefits to your school, but also to the country.

3.8.15 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

1.2 distinguishes between facts and opinions [works with sources];

1.3 categorises information [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

LO 2

GEOGRAPHICAL KNOWLEDGE AND UNDERSTANDING

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

We know this when the learner:

2.2 identifies links between natural resources and economic activities in South Africa [people and resources];

2.3 describes ways in which the physical environment influences human activity and how human activity is influenced by the physical environment [people and the environment].

3.9 Describing concepts[9]

3.9.1 GEOGRAPHY

3.9.2 Grade 5

3.9.3 POPULATION: DISTRIBUTION AND DENSITY

3.9.4 Module 24

3.9.5 DESCRIBING CONCEPTS

Population: The people who live in a specific area (town/region/city/province/country/part of the world).

Population Distribution: Where people live within a specific area.

Population Density: How many people live in a specific area.

To work out the density of population of a region/country, you take the total population of the region/country and divide it by the total area (in square kilometres) of the region/country. Your answer should indicate the number of people on average that live in a square kilometre of the region/country.

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[9] This content is available online at <http://cnx.org/content/m22332/1.1/>.

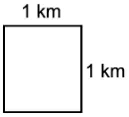

Figure 3.15

One square kilometre is a square area measuring one kilometre by one kilometre:
Seen from the top:

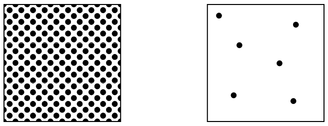

Figure 3.16

DENSELY POPULATED …………………… SPARSELY POPULATED

3.9.6 ACTIVITY 1:

3.9.7 TO CALCULATE THE POPULATION DENSITY OF SOUTH AFRICA

3.9.8 [LO 1.1]

Use the following statistics, your pocket calculator and the formula above to calculate the population density of South Africa and India respectively. Round off your answer to the nearest integer.

Population of South Africa (according to 1996 census): 41 million (rounded off).

Area of South Africa: 1 219 090 km^2 (rounded off).

Population of India (according to 2001 census): 1 029 million (rounded off).

Area of India: 3 174 723 km^2 (rounded off).

What conclusion do you come to if you compare the population numbers of South Africa and India?

It is important to remember that the above numbers are only average numbers. There are areas in South Africa (and India) where more or fewer people live per km**2**.

3.9.9 ACTIVITY 2:

3.9.10 TO DO A CENSUS AND REPRESENT IT GRAPHICALLY

3.9.11 [LO 1.3; 1.7]

Do a census in your class/grade.

- Compile a list of approximately 10 questions that are found on a census form.e.g. How old are you?

	0 – 20		20 – 30
	30 – 50		50+

Table 3.4

In what type of house do you live?

	flat		house on separate plot
	townhouse		other

Table 3.5

Which of the following articles are found in your home?

	television		radio		microwave
	computer		camera		telephone
	Cell phone		satellite television		internetetc.

Table 3.6

- Your questions must be aimed at the general public, and not only at the local inhabitants.
- After the class has completed the census, process the information and put it in writing. E.g. 30% have a television set / 28% has access to the internet / 90% have cellular phones, etc.
- Illustrate one of the questions by means of a pie graph.

3.9.12 ACTIVITY 3:

3.9.13 TO INTERPRET AND SHOW THE HUMAN POPULATION NUMBERS GRAPHICALLY

3.9.14 [LO 1.7]

- The following numbers represent the size of the different population groups in South Africa according to the census information of 1996.

Total population:	40,6 million
Africans:	31,1 million
Whites:	4,4 million
Coloureds:	3,6 million
Indians:	1,1 million
Other:	0,4 million

Table 3.7

Illustrate the population composition by means of a graph.

3.9.15 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

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1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

3.10 Write a report[10]

3.10.1 GEOGRAPHY

3.10.2 Grade 5

3.10.3 POPULATION: DISTRIBUTION AND DENSITY

3.10.4 Module 25

3.10.5 WHO LIVES WHERE?

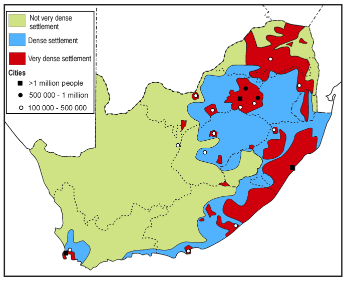

Figure 3.17

The distribution of the South African population

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[10] This content is available online at <http://cnx.org/content/m22338/1.1/>.

3.10.5.1 ACTIVITY 1:

3.10.5.2 TO RECOGNISE DENSELY POPULATED REGIONS IN SOUTH AFRICA ON A MAP

3.10.5.3 [LO 1.1; 1.3]

Use an atlas with the above map and identify five urban areas with a large and dense population. Refer to the provincial boundaries to help you to work accurately.

Densely populated urban areas:

Physical factors that influence population distribution

A. The role that the discovery of minerals has played in the settlement of people in South Africa

Large population shifts occurred in South Africa after the discovery of diamonds by approximately 1870 near Kimberley and the discovery of gold in 1886 on the Witwatersrand. Until that time, the population in the interior of the country was relatively scattered. Then people started streaming to the gold and diamond fields and caused a great concentration of people. Soon cities were established where people had previously lived by farming on properties that were far apart from one another.

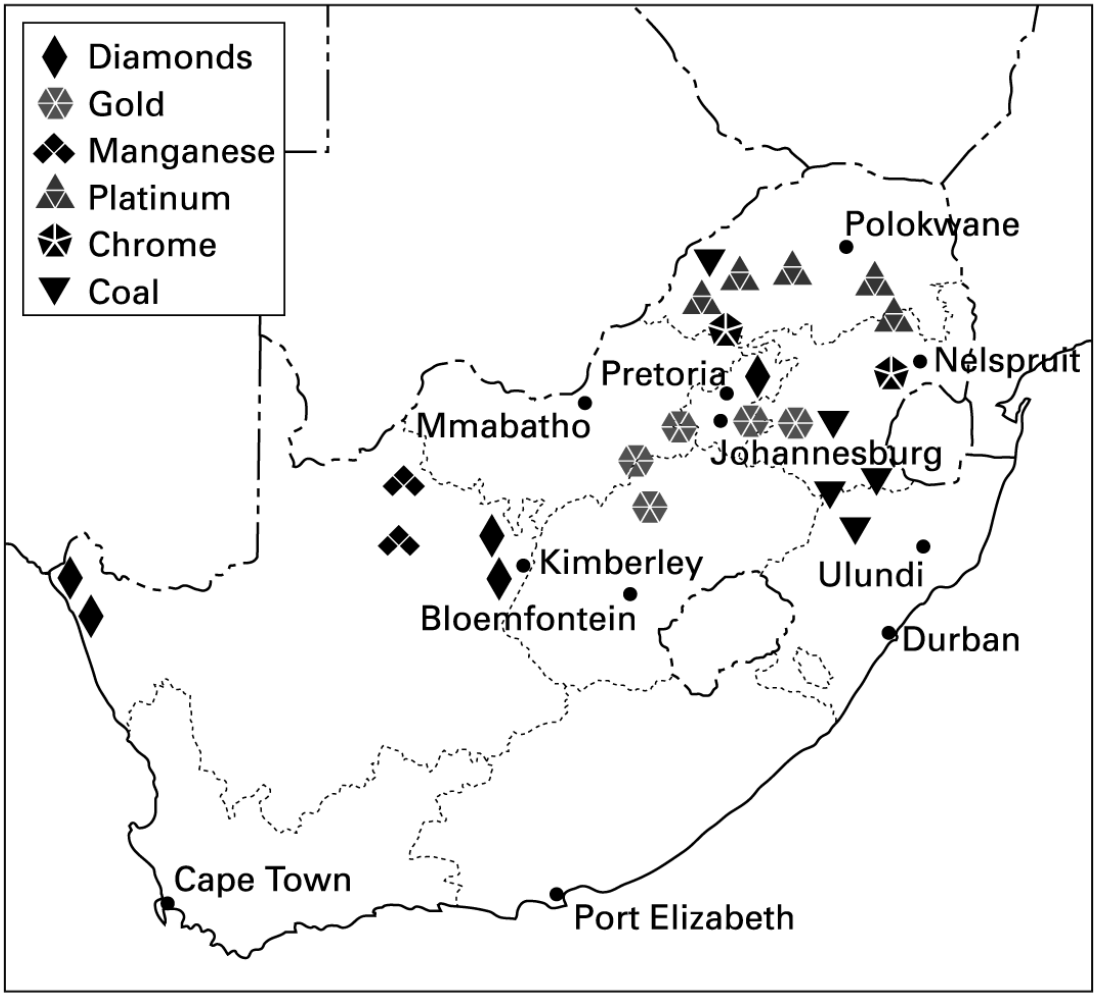

Figure 3.18

Mining of minerals

Remember that the mining activities soon also attracted other industries. Factories that manufactured mining equipment, were built and industries that provided in the daily needs of the people, were also established. Traders who sold the manufactured goods appeared on the scene. Minerals often provide the spark that sets off and maintains large-scale development.

Johannesburg, after the discovery of gold, was founded as a mining town, but had become a metropolis within 100 years. If all the gold mines in the region were to become exhausted, it would be a setback for the economy, but the city will continue to provide a large number of services and will therefore still provide work for millions of people.

B. Settlements are also influenced by factors other than the occurrence of mineral deposits

The presence of minerals is not the only factor that leads to settlement. Many fishing communities along the coast make a living from the sea and settle where there is a natural harbour or where a harbour has been built. Fishing therefore is the reason for settling and industries that deliver products to the fishing industry, or process fish, play a role in the creation of employment. Agriculture is a reason for settlement in many parts of South Africa, and in other parts it may be forestry.

Mining, agriculture, forestry and fishing are primary industries. They are first in the order of industries. After the primary industries, we have the secondary industries that process the primary products. At the fringe of the primary and secondary industries, we have trading, which allows products to be bought and sold. Transport plays an important role in the whole process and services also have to be provided where there are so many industries.

It is important to understand how all these processes are linked, but it is important to realise that people are employed in all these industries. The development of more products and building of more factories lead to the creation of better and more employment opportunities for people, who then also have a place to stay.

3.10.5.4 ACTIVITY 2:

3.10.5.5 TO PLACE DIFFERENT PROFESSIONS IN CATEGORIES

3.10.5.6 [LO 1.3]

- Below there are ten statements. Place a tick in the appropriate column to indicate the city.

Refer to the maps of Southern Africa in your atlas. They provide information that will help you to choose the right answer.

	Johannesburg	Durban	Cape Town
1. This city has no significant mining activity.			
1. Industries provide equipment for gold mines.			
1. Many job opportunities in the sugar industry are nearby.			

continued on next page

1. The fishing industry is an important employer.			
1. Water may become a problem for the large population.			
1. Services are provided for the mining industry in general.			
1. The country's densest railway network is nearby.			
1. The largest city in South Africa.			
1. The capital city of the smallest province.			
1. Capital city of the province with the largest population.			

Table 3.8

3.10.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

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1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

3.10.7 Memorandum

- Cape Town
- Durban
- Johannesburg
- Pretoria

3.11 Settlement on agricultural ground[11]

3.11.1 GEOGRAPHY

3.11.2 Grade 5

3.11.3 POPULATION: DISTRIBUTION AND DENSITY

3.11.4 Module 26

3.11.5 SETTLEMENT ON AGRICULTURAL LAND

By this time you probably know that some agricultural activities require more labourers than other agricultural activities. In the Boland regions like Paarl have many opportunities for employment on fruit and wine farms, while the opposite applies to farms in arid regions like the Karoo. The population density will therefore be much higher on farms in the Boland and the surrounding areas, while the population will be much less dense in the Karoo.

There is a link between farming and settlement, because the density of the population on agricultural land usually depends on the climate, as well as on the fertility of the soil and its potential. We also have to consider the potential, because soil that is not fertile will not be able to sustain a large population, even if the rainfall is high and occurs regularly.

Rainfall and the potential of the soil type of farming population density

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[11] This content is available online at <http://cnx.org/content/m22344/1.1/>.

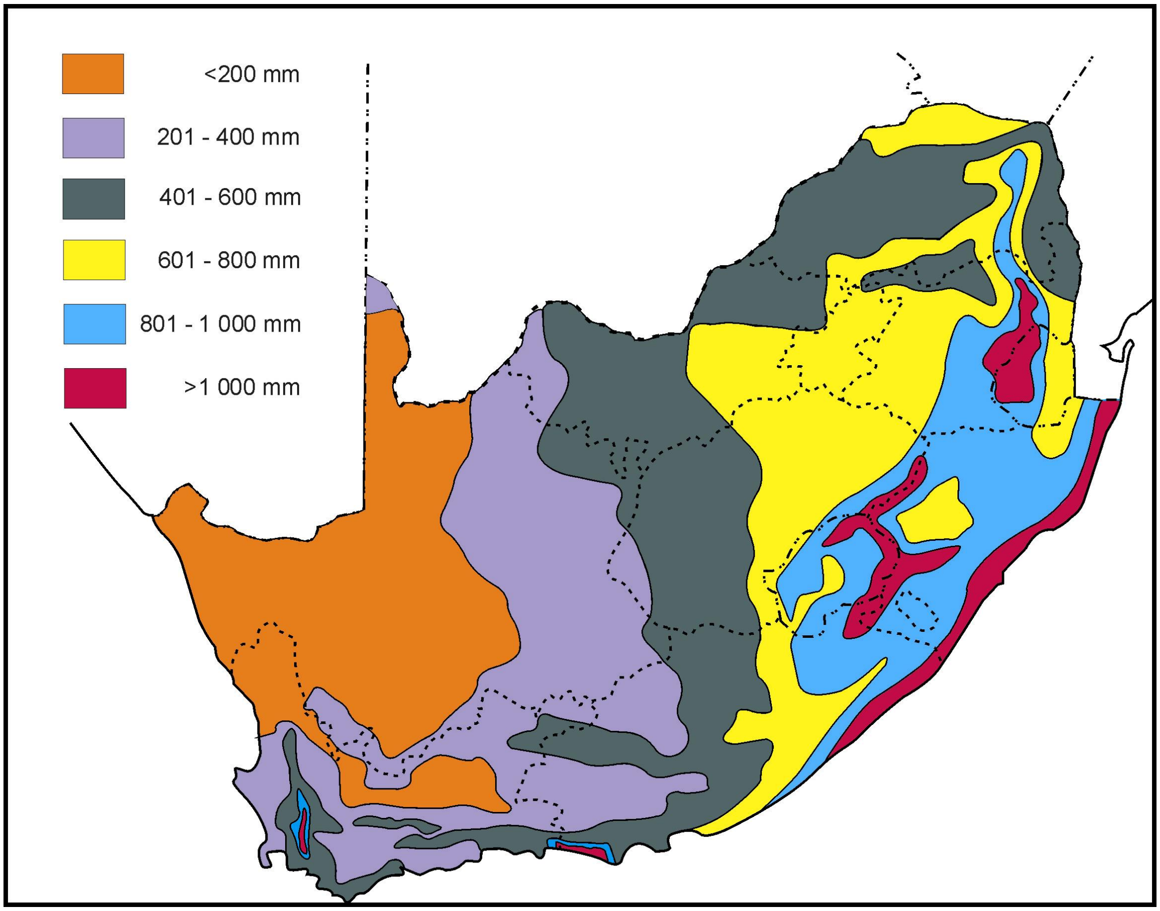

Figure 3.19

Average annual rainfall

Statement

We must also bear in mind that the relationship between climate, agricultural yield and population density is not a phenomenon that was introduced to South Africa by the European colonists. Before the 17th century the population density was considerably higher in the eastern parts of Southern Africa, where the rainfall was much higher than in the drier western parts.

3.11.6 ACTIVITY 1:

3.11.7 TO IDENTIFY LINKS BETWEEN NATURAL RESOURCES AND PEOPLE

3.11.8 [LO 2.2]

"history-geographers"

- Discuss the statement on the previous page. Remember, the original inhabitants were mostly hunters and stock farmers, although they also tilled the soil on a small scale.
- Explain how it is possible that the settlement pattern of today coincides with that of 300 years ago.

Pretend that a town called Siani was established at the beginning of the twentieth century. Let's follow the development of this town.

The history of the town Siani

1900

A valuable mineral was discovered on the slope of Mount Siani in June 1900, and a decision was taken to start mining activities.

The mine is about eight kilometres from Mkongi, a small railway siding near Mfume River.

The small shops at Mkongi serve the local community of agriculturists farming on scattered farms in the surrounding area.

1940

Forty years after the discovery of the mineral, mining activities are in full swing and these activities almost overshadow all other activities in the region. A residential area has been established at the mine and there is a business centre that serves the whole region.

The station has been enlarged, but the small shops closed because of the larger shops in the mining town. The mine workshops also offer services to people who are not connected to the mine.

1980

During the preceding forty years the town has grown from a small mining town to a very large mining town, a business centre and an industrial area that serves a large district. The town has its own municipality and has been named Siani, from the mountain to the east of this rapidly expanding town.

The inhabitants of the town have learnt with shock that the mine has become exhausted and will be closed down within a few years. Technological changes have also decreased the demand for the metal, and a decision to end prospecting was taken some years ago.

2020

Siani is a large town situated between the Mfume River and the slopes of Mount Siani. The only reminder of the old Siani mine is a monument against the mountain slope. The beautiful gardens that have been developed on the site of the former mine are dominated by a large hotel, the popular Mkongi.

The railway line to the north of the old station was removed to make room for a residential area and the century-old station building has been restored and used as the town's tourist centre. A tourist train carries a fresh group of guests to the four-star Mkongi Hotel each week. Siani has grown from a small railway siding to a show town in a mere 120 years. The majority of the town's population of 40 000 is involved in light industry, commerce and tourism.

3.11.9 ACTIVITY 2:

3.11.10 TO INVESTIGATE THE INTERACTION BETWEEN PEOPLE AND THE ENVIRONMENT OVER A PERIOD OF TIME

3.11.11 [LO 2.2; 2.3]

- Changes in land use over a period of 120 years, as illustrated by the history of the town of Siani.

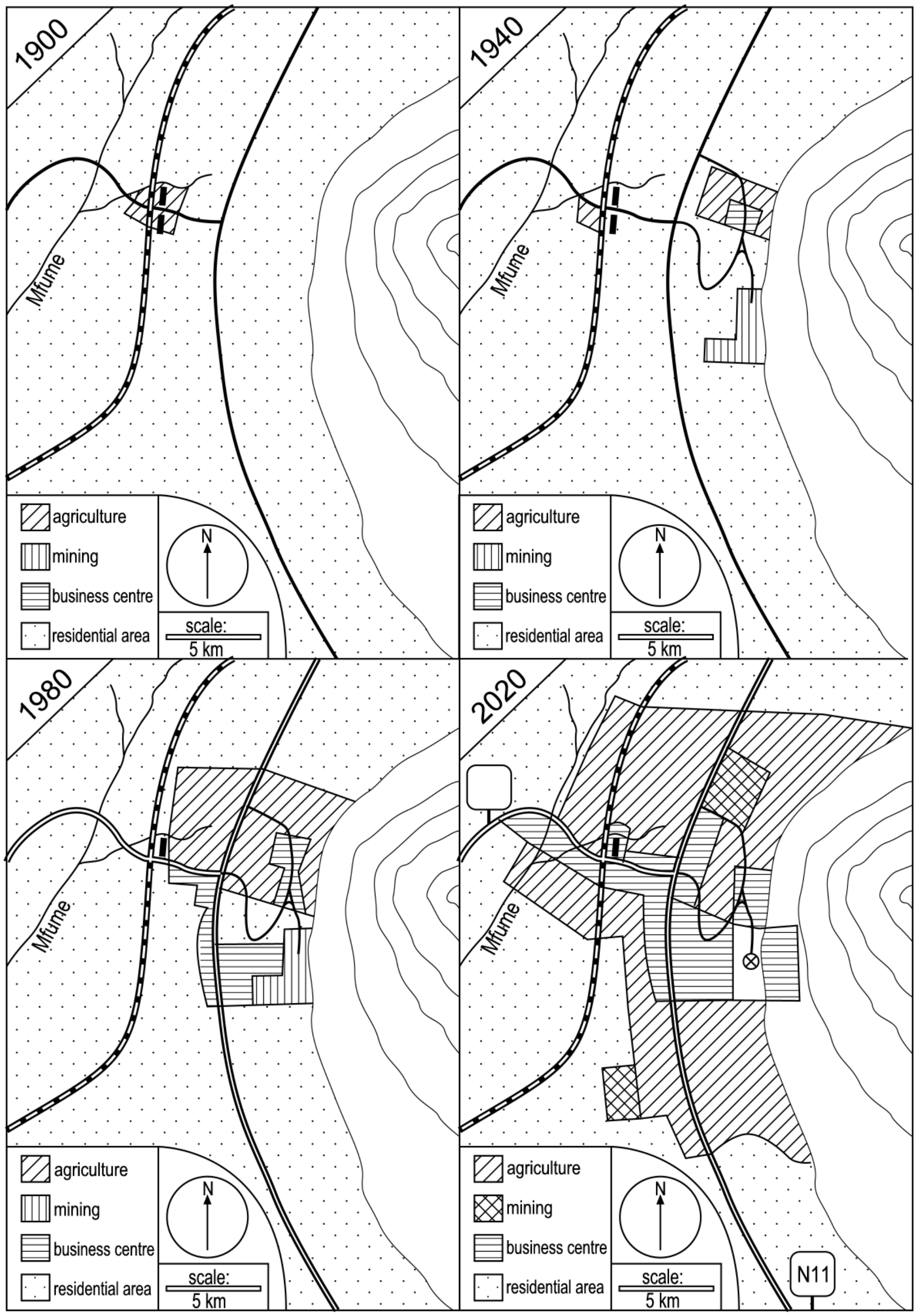

Figure 3.20

Group work

Siani has shown remarkable growth in 120 years. Consider this carefully and LIST AS MANY REASONS AS POSSIBLE for the town's rapid growth and why the closing down of the mine, which was responsible for the establishment of the town, did not bring an end to the town as well.

3.11.12 Assessment

LO 2

GEOGRAPHICAL KNOWLEDGE AND UNDERSTANDING

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

We know this when the learner:

2.1 identifies and describes major physical features of South Africa, including those of the home province [people and places];

2.2 identifies links between natural resources and economic activities in South Africa [people and resources];

2.3 describes ways in which the physical environment influences human activity and how human activity is influenced by the physical environment [people and the environment

3.11.13 Memorandum

- Initially farming (agriculture) and mining – establish economy
- Beautiful scenery – sufficient water
- Developed industries
- Established commercial centre
- Tourism supports economy

3.12 Nature conservation and environment[12]

3.12.1 GEOGRAPHY

3.12.2 Grade 5

3.12.3 POPULATION: DISTRIBUTION AND DENSITY

3.12.4 Module 27

3.12.5 NATURE CONSERVATION AREAS AND ENVIRONMENT

The United Nations Organisation's ideal is that countries should manage 10% of their territory as nature conservation areas. In South African terms this would include National Parks (like the Kruger National Park), reserves that are managed by the Departments of Nature Conservation of the different provinces, reserves that are under municipal control, as well as land owned privately, e.g. by mining companies and other organisations and farmers who manage a section of their land as reserves, game parks and game farms.

South Africa is not doing too well in this field, because only 7% of the country was managed as nature conservation areas in 2000. This situation may be improving as more land is continually being added to land that has already been set aside for conservation.

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[12] This content is available online at <http://cnx.org/content/m22345/1.1/>.

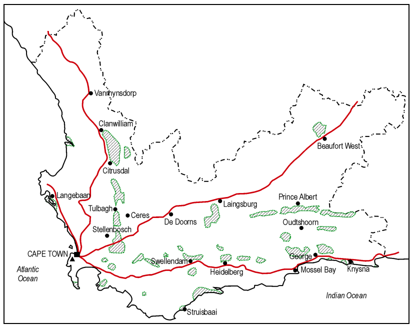

Figure 3.21

Land use in the Western Cape

3.12.6 ACTIVITY 1:

3.12.7 TO IDENTIFY IMPORTANT NATURE CONSERVATION AREAS IN SOUTH AFRICA

3.12.8 [LO 2.1]

Complete the table:

The name of the National Park closest to your own town or city.	A description of the nearest provincial nature conservation area.
Does your municipality manage a proclaimed nature conservation area? Describe it.	Provide the name of a private nature conservation area near you.

Table 3.9

Nature conservation areas do not necessarily have to focus on the protection of plants or animals. Mountain catchment areas are frequently managed to protect vegetation so that rainwater will soak into the soil to supplement the underground water supply instead of flowing into the sea.

It should be clear why the nature conservation areas of any country would be the parts of the country with the lowest population density.

What about the people and the environment?

Mining and industry have many advantages for the country, but thorough consideration should be given to their effect on people and the environment.

In large mining and industrial areas, dust and gases are released into the air, and this has an effect on the people who work at the mines and in the industrial areas, and on the environment!

3.12.9 ACTIVITY 2:

3.12.10 TO FIND OUT HOW PEOPLE AND THEIR ENVIRONMENT INFLUENCE ONE ANOTHER

3.12.11 [LO 2.3]

- Make a list of the possible dangers to people and the problems for the environment in an area such as South West Mpumalanga with all its coal and platinum mines:

Dangers that threaten people:

Dangers that threaten the environment:

3.12.12 Assessment

LO 2

GEOGRAPHICAL KNOWLEDGE AND UNDERSTANDING

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

We know this when the learner:

2.1 identifies and describes major physical features of South Africa, including those of the home province [people and places];

2.2 identifies links between natural resources and economic activities in South Africa [people and resources];

2.3 describes ways in which the physical environment influences human activity and how human activity is influenced by the physical environment [people and the environment

3.12.13 Memorandum

ACTIVITY 2

- Dangers: - Poor health - Lower standard of life and life expectancy

- Problems: - Gases (air-pollution) - Polluted water - Soil absorbs toxic waste - Has an effect on quality of agricultural products

3.13 The role of technology in establishing settlements[13]

3.13.1 GEOGRAPHY

3.13.2 Grade 5

3.13.3 POPULATION: DISTRIBUTION AND DENSITY

3.13.4 Module 28

The role of technology in establishing settlements

Human factors that influence population distribution

The role of technology in establishing settlements

Technology can create and also solve problems when a settlement is established!

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[13] This content is available online at <http://cnx.org/content/m22346/1.1/>.

In the past, and also today, running water was very important when deciding where to settle. Nowadays technology makes it possible to take water to where people settle. People do not have to settle close to water any more.

The Vaal Dam supplies almost all the water in Gauteng and the western part of Mpumalanga. But, the needs of the population and the industries have increased so greatly that water has to be brought from the Katse Dam in Lesotho, almost 300 km away, to add to the water from the Vaal Dam. Engineers are designing enormous dams, tunnels and pipelines to transport water to Gauteng to ensure development in that region.

Technology has also had a negative impact on the settlement of people in the Northern Cape and in other parts of the country. Copper wire used to be important as a conductor in telephone systems. Now optic fibres have replaced copper. Copper mines in South Africa, as well as in other parts of the world had to be closed down.

Copper mines near places like Prieska and Springbok in the dry and sparsely populated Northern Cape used to provide many employment opportunities, but many people left the area when the mines were closed and those who have stayed behind are surviving with difficulty.

There are limitations to what can be done, though, because people are able to build dams and canals, but they cannot make water. Eventually there will not be enough water to allow unlimited expansion!

3.13.4.1 ACTIVITY 1:

3.13.4.2 TO BEGIN AN INVESTIGATION

3.13.4.3 [LO 2.3]

Investigating the effects and development of modern technology on the settlement of people in a region.

(Place a `[U+F034]` in the appropriate space)

		Effect on community		
Development	New community settles	Increase in existing community	Decrease in existing community	Community wiped out
1. A very important mineral is discovered in the middle of the desert.				
2. New technology makes it possible for existing mines to be more productive.				

continued on next page

3. A very large mine in the Karoo stops being productive.				
4. Labour problems lead to mine management deciding to introduce mechanisation.				
5. Fruit farmers develop technology that doubles the yield per hectare.				
6. Technology discovered for large-scale desalination of seawater.				

Table 3.10

3.13.5 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

1.2 distinguishes between facts and opinions [works with sources];

1.3 categorises information [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

LO 2

GEOGRAPHICAL KNOWLEDGE AND UNDERSTANDING

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

We know this when the learner:

2.1 identifies and describes major physical features of South Africa, including those of the home province [people and places];

2.2 identifies links between natural resources and economic activities in South Africa [people and resources];

2.3 describes ways in which the physical environment influences human activity and how human activity is influenced by the physical environment [people and the environment

3.13.6 Memorandum

ACTIVITY 1

1. New community settles

2. Increase in existing community
3. Decrease in existing community
4. Decrease in existing community
5. Increase in existing community
6. New community settles; Increase in existing community

Figure 3.22

3.14 Sasol and technology[14]

3.14.1 GEOGRAPHY

3.14.2 Grade 5

3.14.3 POPULATION: DISTRIBUTION AND DENSITY

3.14.4 Module 29

3.14.5 Sasol and technology

The development of technology also played an important role in the settlement of people at the coal mines of Mpumalanga.

SASOL was established in the middle of the previous century to manufacture, amongst other things, petroleum from coal. Petroleum and other chemical substances, like artificial fertilizers, have been manufactured in the Northern Free State since 1955.

Further developments in this technology over the next 50 years have had an enormous influence on the settling of people in the Northern Free State and in southwest Mpumalanga. If it had not been possible to manufacture chemical substances from coal, this region would have had a stretch of coal mines now, with only the employment opportunities that these mines can offer. Technology, however, makes drastic changes possible. In addition to the mines, there now are large factories that provide employment to thousands of people in the region.

Industries and industrial areas

South Africa is a fairly prosperous country compared to the rest of Africa. **Minerals**, **fishing**, **agriculture** and **forestry** provide the **foundation** of our prosperity.

The products obtained from the above are processed in factories to add value to the primary products and thereby ensure prosperity. Numerous employment opportunities created in the factories, and salaries and wages earned by factory workers create prosperity amongst the people.

The four primary industries are

- Mining

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[14] This content is available online at <http://cnx.org/content/m29685/1.1/>.

- Agriculture
- Fishing
- Forestry

The secondary industries where the processing of primary products take place, are:

- Baking
- Fuel
- Canned fruit
- Jewellery
- Clothing
- Fertilizer
- Furniture
- Motor industry
- Shipbuilding
- Steel
- Dairy products
- Processing of fish
- Armaments

People can do nothing about the location of mines, but many issues are considered with regard to the location of the factories in which the products (of the mines) are processed.

A furniture factory will not necessarily be erected near plantations or a steel factory near the mine where the iron ore is mined. People and their interests play an important part in decisions about where factories should be erected. That is why we have to learn about industries when we study human settlement.

3.14.5.1 ACTIVITY 1:

3.14.5.2 TO INVESTIGATE THE LOCATION OF INDUSTRIAL AREAS

3.14.5.3 [LO 2.2]

What would be an ideal location for a fish-processing factory?

What would be an ideal location for an automobile factory?

The most important industrial areas in South Africa

The most important industrial areas in South Africa are in the following urban areas:

At the coast	In the interior
Cape Town and environment	1. Pretoria and environment
Port Elizabeth	1. The whole of the Witwatersrand area

continued on next page

East London	1. Vereeniging / Vanderbijlpark / Sasolburg
Durban/Pinetown	1. Bloemfontein
Richards Bay	5. Kimberley

Table 3.11

3.14.5.4 ACTIVITY 2:

3.14.5.5 TO INDICATE THE LOCATION OF INDUSTRIAL AREAS IN SOUTH AFRICA ON A MAP

3.14.5.6 [LO 1.1]

Write the numbers allocated to the most important industrial areas where the relevant urban areas are on the following map.

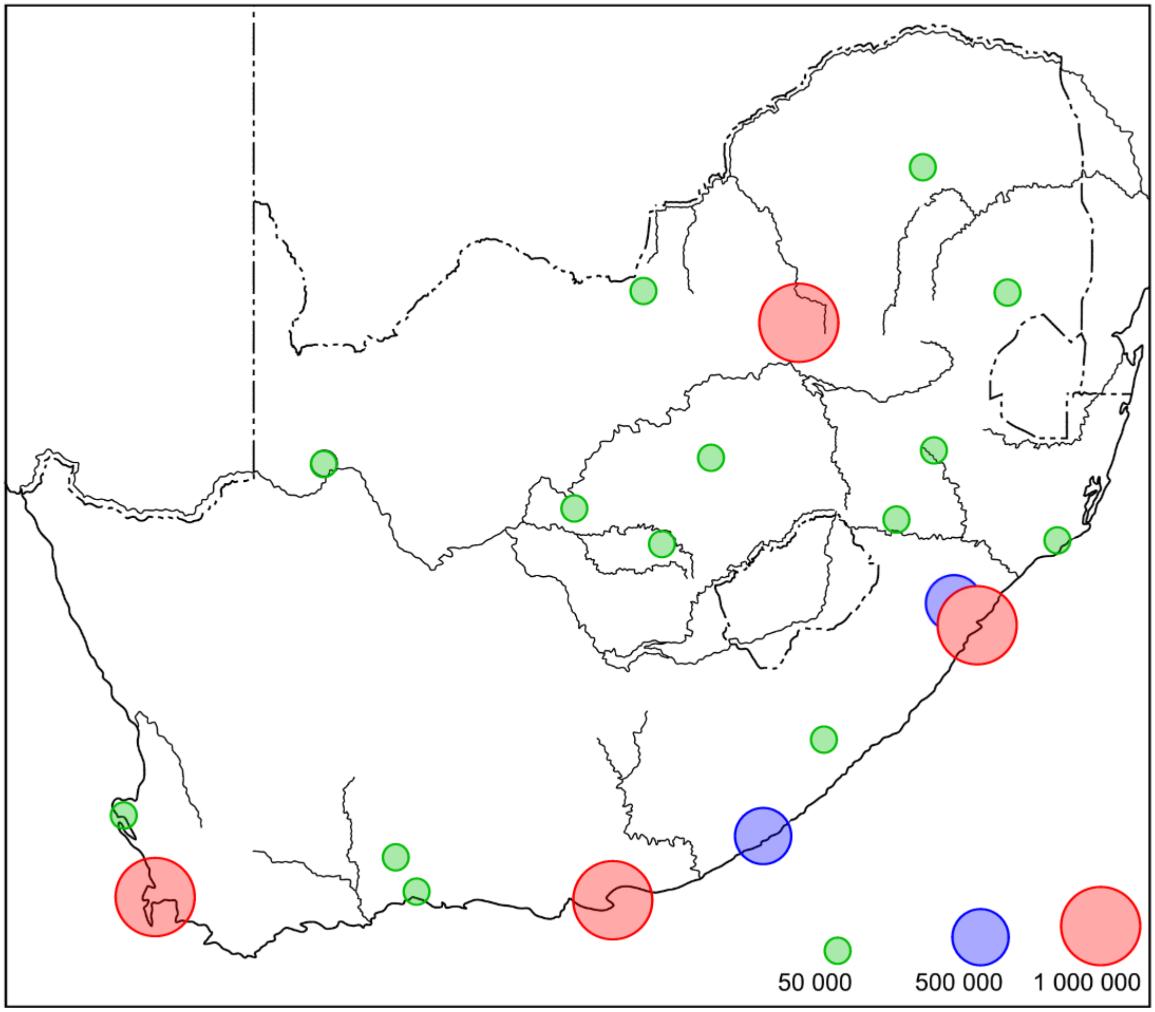

Figure 3.23

The urban areas of the Republic of South Africa

3.14.5.7 ACTIVITY 3:

3.14.5.8 TO RECOGNISE THE RELATIONSHIP BETWEEN POPULATION DISTRIBUTION AND THE LOCATION OF INDUSTRIES

3.14.5.9 [LO 2.2]

Do you notice any connection between the population density and the concentration of industrial areas? Motivate your answer.

3.14.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

1.2 distinguishes between facts and opinions [works with sources];

1.3 categorises information [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

LO 2

GEOGRAPHICAL KNOWLEDGE AND UNDERSTANDING

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

We know this when the learner:

2.1 identifies and describes major physical features of South Africa, including those of the home province [people and places];

2.2 identifies links between natural resources and economic activities in South Africa [people and resources];

2.3 describes ways in which the physical environment influences human activity and how human activity is influenced by the physical environment [people and the environment

3.14.7 Memorandum

ACTIVITY 1

Where fish resources are

Close to transport network and labour source

ACTIVITY 2

Yes, where industries are established, population is denser

Advantages:

- Employment
- Income
- Further training
- More opportunities

Disadvantages:

- Poor living conditions
- Transport problems
- Perhaps unemployed
- Violence
- Crime

Poorer – desperate for food and clothing and living accommodation

No support

Transport

Unemployment

Services

Crime

Housing

Housing supplied

Medical services supplied

3.15 Urbanisation[15]

3.15.1 GEOGRAPHY

3.15.2 Grade 5

3.15.3 POPULATION: DISTRIBUTION AND DENSITY

3.15.4 Module 30

3.15.5 Urbanisation

3.15.5.1 ACTIVITY 1:

3.15.5.2 TO STUDY A PRACTICAL CASE

3.15.5.3 [LO 1.6; 1.7]

Case Study:

Livingstone is 16 years old and he has completed his schooling. He passed grade 10 with good marks. He lives on a farm near Napier where his father is employed as a labourer. His mother also helps on the farm, and his brother and two sisters are still at school. Livingstone looked everywhere in town, but could not find a job. Perhaps he could do odd jobs as a gardener in town. He could then earn an average of R150,00 per week.

His aunt lives in Gauteng in Soweto. She has a two-bedroom house in which five people live. She suggested that Livingstone build himself a small wooden shack in the back yard and find a job in Johannesburg.

What do you think should Livingstone do?

What would the advantages be if he moved to Johannesburg?

What would the disadvantages of such a move be?

Suppose he does not find a job in Johannesburg, how would his standard of living in the city compare to his standard of living in Napier? Give reasons for your answer.

What are the main problems in the informal urban settlements presently?

What is done presently by the government and private organisations to address these problems?

Can you and your group make suggestions on how to address these problems?

When people move from the rural areas to the cities, **urbanisation** takes place.

3.15.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

1.2 distinguishes between facts and opinions [works with sources];

1.3 categorises information [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

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[15] This content is available online at <http://cnx.org/content/m22349/1.1/>.

3.16 Forced removals[16]

3.16.1 GEOGRAPHY

3.16.2 Grade 5

3.16.3 POPULATION: DISTRIBUTION AND DENSITY

3.16.4 Module 31

3.16.5 Forced removals

In 1948 the National Party came into power in our country. The party developed a policy according to which different cultural groups were separated and settled in separate areas with their own suburbs, recreational facilities, schools, business centres, etc. The Group Areas Act was imposed to implement this policy. This act deprived people of the freedom to choose where they wanted to live. Certain areas were reserved for certain cultural groups. Large groups were forced to vacate their homes and businesses in these areas to make place for other groups for whom the area was reserved.

This policy was followed until 1994 in South Africa, when the first democratic political election took place. The ANC came into power and they abolished the Group Areas Act of 1950 immediately.

Examples of these removals were Sophiatown in Johannesburg and District Six in Cape Town.

The latter area was established when slavery was abolished at the Cape. There were a variety of cultures who once lived together in harmony.

3.16.5.1 ACTIVITY 1:

3.16.5.2 TO DISTINGUISH BETWEEN FACTS AND OPINIONS

3.16.5.3 [LO 1.2; 1.7]

Read the newspaper reports, discuss the contents in your groups and answer the questions.

PUTTING DISTRICT SIX TOGETHER AGAIN

Glynnis Underhill

CAPE TOWN - A vision of District Six as “a community of the future” will be outlined at the signing of a historic deal between evicted residents, the Government and the City of Cape Town tomorrow.

The signatories will pledge to recognise the pain and suffering of the community and to re-establish the vibrancy of District Six in its redevelopment.

Major land claimants like Abdul Gaffoor Ebrahim, whose father owned nine properties and two shops in District Six, have also thrown their weight behind the deal, which will pave the way for the speedy redevelopment of the area.

“Nowhere in history have landowners been prepared to sacrifice their land a second time in the interests of the broader community.

“I am hopeful that the Government is committed to restitution and will carry out its moral duty by delivering on its promises. But landowners must be fairly and justly compensated,” said Mr Ebrahim.

More than 45 000 people – families of tenants and landowners who were thrown out under the despised Group Areas Act in the 1960s – are now expected to return to affordable housing in District Six.

Cape Town municipality and the provincial government have been at loggerheads with former residents over the valuable inner-city land.

But now the three parties will commit themselves in writing to work towards healing the damage caused by apartheid, putting to rest years of wrangling.

Plans to create an inner-city community, with emphasis on the most affordable housing, will be developed and discussed at workshops.

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[16] This content is available online at <http://cnx.org/content/m22350/1.1/>.

Mr Ebrahim said the international community was watching events unfold in District Six and was witnessing this “sorry chapter” in our history come to an end.

“This will be a victory for the victims of apartheid,” he said.

A set of principles will be agreed on at the meeting, including dispute mechanisms.

The valuable vacant District Six land still in the hands of the Western Cape provincial government and the Cape Town City Council is expected to be placed in a trust.

About 45 ha of vacant land, some of which is in private hands, is believed to be available for redevelopment. Negotiations over the land will take place with private owners.

Wallace Mgoqi, regional land claims commissioner, said the common vision found by the different parties for District Six constituted a breakthrough.

“It is a milestone in the protracted struggle which has been going on since the commencement of the claim,” he said.

Money for the redevelopment would be sourced from the Government as well as from local and international donors, said Mr Mgoqi.

Anwah Nagia, chairman of the District Six Beneficiary and Redevelopment Trust, said fears that the area would become a slum were completely unfounded.

“Nobody wants to encourage the building of a slum in District Six. We are not building houses that are uninhabitable.

“We will be looking at erecting affordable housing, not sub-economic housing,” he said.

The plan was to present claimants who wished to return to District Six with title deeds to property, he said.

However, Mr Nagia said he did not believe that white landlords – whom he felt had been well compensated when they left the area and had not been forcibly removed – should be given priority in the redevelopment.

Mr Nagia, a former resident of District Six, said he personally would not lodge a claim as he already owned a house in Walmer Estate and he would prefer to see those less fortunate being given homes.

Many former residents are not sure whether the spirit of District Six can be recreated after so much pain and suffering. The area was reduced to a windswept landscape after residents were forcibly evicted in terms of the Group Areas Act.

Mr Ebrahim said: “That’s the million-dollar question.”

“But we believe restitution must also be about restoring the dignity of our suffering.”

He said his father, Jamallodien Ebrahim, died a heartbroken man after he was thrown out of District Six, where he owned nine houses and two shops.

Mr Ebrahim said he hoped to see the restitution of this land if possible, but he would be prepared to consider accepting alternative state land in the area or financial compensation instead.

Another alternative would be for stakeholders to be given shares in the rebuilding of District Six, he suggested.

Mr Ebrahim was 24 when his family was thrown off their land and moved into a two-room flat in Gatesville. From being a businessman running his father’s general dealer company, he became “a beggar” overnight.

“Landowners have to be given fair and just compensation. As shopkeepers, most of us lost not only our businesses but our livelihood.

“I became a beggar and it was only because of the support of my family that I survived,” he said.

Mr Ebrahim said he saw the signing of the three-way agreement between representatives of evicted residents, government and local authorities as a breakthrough in the restitution process.

“It shows we can work together to make this happen. Government must remedy past violations of human rights.

“We all suffered substantial losses when our land was stolen – we got peanuts for our land and property,” he said.

Another land claimant, Abdul K Ahmed, said he hoped the Government would not make a mockery of the restitution process.

"It must carry out its moral duty to the victims of forced removal and ensure that former landowners are justly and equitably compensated," he said.

Mr Ebrahim said Mr Nagia, who also heads the District Six Civic Association, was the right person to drive the community redevelopment of District Six.

"He has always tried to bring everybody together and to understand all the disputes. He is one of the old fighters of District Six," he said.

FEBRUARY 11 WAS A DARK DAY FOR DISTRICT SIX, BUT THIS YEAR IT MEANS JOY FOR TWO FAMILIES

Nazma Dreyer

The first two District Six land restitution residents will return to Chapel Street on February 11 – on the anniversary of the day on which the apartheid government declared the area white in 1966.

Ebrahiem Murat, 87, of Retreat and Dan Mdzabela, 82, of Gugulethu will be going back to the place they call home, and their houses are nearly complete. Murat will be moving into 8 Chapel Street and Mdzabela will be right next door in number six.

An elated Murat said: "I am so glad to be moving out of Retreat and back to District Six."

Before moving to retreat over 20 years ago, Murat lived in Lavender Hills for six years. He will be moving into his new home with his daughter and four grandchildren.

With sadness in his voice, he said his wife, who was looking forward to moving back to District Six, died in July last year.

Murat said he was born in District Six's Lisa Street – "a small street with a handful of houses".

"We were 19 children and were all born there. My mother had many sets of twins. I had two sets of twins of my own, but one set died. Now I have four girls and two boys. The twins are 50 years old."

Asked what the best thing about moving would be, Murat said: "I can't wait to get out of Retreat because I don't like using the taxis where people have to sit like sardines."

Murat religiously travels from Retreat to the city centre by train and taxi to do his grocery shopping every month.

"When I move to District Six, I won't have to worry about travelling far to do my shopping in town."

Mdzabela was forced out of his Wicht Street home in District Six in 1959 where his four children were born. "I am happy to be going back," said Mdzabela, who will return with his wife and grandchildren.

The District Six Beneficiaries Trust secretary Abdurahman Parker said that of the nine houses to be completed in April, two would be finished by February 11 to commemorate the day the area was declared white in terms of the Group Areas Act.

The two oldest beneficiaries – Mdzabela and Murat – would move in on that day.

Said Parker: "Eviction notices were received by District Six residents on February 11 as well, and that is why this date is so significant to us."

He said each year a candle-light vigil was held in the area on February 11 by the District Six Museum, District Six Civic Association, District Six Beneficiaries Trust and other organisations.

"This year is going to be historic because the first people will return to their homes."

About 4 000 homes will be built in District Six within the next three years as part of restitution, said Parker.

The first phase started recently with 24 homes being built, nine of which were to be completed by April.

In which city is/was District Six situated?

In approximately which year were the residents of District Six evicted from the area?

Which cultural group mainly lived in District Six?

Approximately how many people were evicted from District?

Would you describe this move as a positive or negative experience for the residents?

Why is February 11 considered to be a dark day in the lives of the people who lived in District Six?

Were the residents of District Six happy with their circumstances?

3.16.5.4 ACTIVITY 2:

3.16.5.5 TO COMPILE A FLOW DIAGRAM

3.16.5.6 [LO 1.7]

Use a flow diagram to depict the factors (natural and human) that contributed to the distribution of the population.

3.16.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

1.2 distinguishes between facts and opinions [works with sources];

1.3 categorises information [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

Chapter 4

Term 4

4.1 Illness and disease[1]

4.1.1 GEOGRAPHY

4.1.2 Grade 5

4.1.3 HEALTH AND WELL-BEING

4.1.4 Module 32

4.1.5 ILLNESS AND DISEASE

We all become ill at times. When this happens, we visit the local doctor and/or take the right medication and wait for a speedy recovery. An ordinary illness can often have far-reaching consequences for people who live far from essential medical services. Sometimes people cannot even afford to buy the necessary medicines because they simply don't have the money.

A. WHY DO WE FALL ILL?

There are germs all around us. We come into contact with them every day but we don't necessarily become ill from the germs we inhale or ingest, because a healthy body has a natural defence system that protects one from becoming ill. The body's **immune system** identifies any foreign cells and simply attacks and destroys the unwelcome visitors. Sometimes, however, a germ may succeed in slipping past the lines of defence and that is when we become ill. The body's immune system carries on fighting against the intruder, and most often the body succeeds in getting well on its own, but there are times when we need medication to help the body recover. Specific medicines have been produced to kill specific "germs". A patient often also takes medicine to strengthen the body again after an illness.

4.1.5.1 ACTIVITY 1:

4.1.5.2 TO GAIN INFORMATION ON MEDICINES FROM VARIOUS SOURCES

4.1.5.3 [LO 1.1]

- Talk to your parents, doctor and/or local pharmacist to find out the name of one kind of medicine that can be used when a patient is experiencing the symptoms listed in the table below. Write the name of the medicine in the column "Possible medication".

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[1] This content is available online at <http://cnx.org/content/m22351/1.1/>.

	Symptoms	**P ossible medication**
1	Severe headache	
2	Diarrhoea	
3	Dry cough	
4	Stomach cramps	
5	Allergic reaction to bee sting	

Table 4.1

There are different kinds of "germs" that attack the body, such as viruses, parasites and fungi that penetrate and invade the body from the outside. In other cases the attackers come from within the body itself, for example cancer cells.

"Germs" that attack the body from outside can penetrate the body in various ways. Some viruses and fungi are present in the air, and are simply inhaled. Others, for example parasites, live in drinking water and are transmitted to humans by insects such as mosquitoes, flies and blowflies. Sometimes there are germs on the objects we touch, and these germs can find their way into our mouths when we eat or touch our lips. Certain viruses, such as the HI virus, enter the body through contact with blood or during sexual intercourse.

B. CURABLE AND INCURABLE DISEASES

Most diseases with which we come into contact almost every day are curable. Some are more persistent and it takes longer to recover from them than from others. There are also some diseases that are so virulent that they just cannot be wiped out. For instance, despite all the research that has been done and the intense treatments that are available, some kinds of cancer still cannot be cured. In such cases treatment and medication are merely aimed at increasing the patient's life expectancy and can do no more than ease the symptoms.

The HI virus that causes Aids is a very nasty virus. At this stage it is still too clever for the body's defence mechanism.

4.1.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

1.2 distinguishes between facts and opinions [works with sources];

1.3 categorises information [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

4.2 Diseases and malaria[2]

4.2.1 GEOGRAPHY

4.2.2 Grade 5

4.2.3 HEALTH AND WELL-BEING

4.2.4 Module 33

4.2.5 DISEASES: MALARIA, TUBERCULOSIS, CHOLERA

We shall now take a look at a few serious diseases that are found all over the world. These terrible diseases are often the cause of many deaths.

Malaria

- Origin and nature:Malaria is a disease that is found in the tropical and subtropical climactic zones (mostly in the northern parts of South Africa). It is caused by a tiny parasite that enters the bloodstream when one is bitten by a certain female mosquito. The parasite spends part of its life cycle in the human body. It multiplies rapidly. It attacks the red blood corpuscles and this makes one very weak indeed. It can also cause death. Many patients suffer from recurrent malaria attacks for years after the first attack.

- Typical symptoms:

- severe headaches;
- bouts of shivering;
- reddish-brown urine;
- a high fever and heavy sweating.

- Treatment:

The patient is taken to hospital immediately, and the area is very carefully inspected for more cases of the disease. If there are many other cases in the same area, one has to look for the mosquitoes' breeding-place and once it has been found, it must be sprayed with insecticide. The patients' homes are also fumigated.

- Prevention:

4.2.5.1 ACTIVITY 1:

4.2.5.2 TO FIND OUT MORE ABOUT PREVENTATIVE MEASURES IN THE PREVENTION OF MALARIA

4.2.5.3 [LO 1.6]

Tuberculosis (TB)

- Origin and nature: Tuberculosis (TB) is a very serious, contagious disease that occurs particularly in mines and in areas where people live very close together and where the standard of hygiene is low. It can also be connected to poverty, and it is much more prevalent where people who are vulnerable to this disease do not have enough money to buy sufficient nourishing food.

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[2] This content is available online at <http://cnx.org/content/m22352/1.1/>.

Are people in your immediate environment exposed to such hazards? Have a group discussion on this issue.

The human body weakens and becomes highly susceptible to diseases such as TB. Often many people from the same area have the same disease, and then we say there is an **epidemic** of that particular disease. TB germs can spread very swiftly. For example, if someone who is incubating the disease coughs near other people, he or she could infect them quite easily.

- Typical symptoms:A TB patient:

- coughs a lot;
- often complains of a tight chest;
- has a very poor appetite and eats very little;
- regularly has a high temperature and perspires a lot at night;
- loses a lot of weight;
- has swollen glands.

- Treatment:

TB patients take tablets as medication. The disease can be cured on condition that the patient takes the tablets regularly as prescribed and continues to do so even when the symptoms have already disappeared.

- Prevention:

A healthy, nourishing daily diet and good sanitary habits are necessary. Babies should be vaccinated against TB so that their bodies can develop resistance to the disease.

Cholera

- Origin and nature:This extremely serious disease usually occurs in hot, humid conditions, such as those that are found in the subtropical areas along the east coast of our country. It occurs in areas where there is no fresh running water, tap water or proper sewerage systems (in densely-populated areas and where there are poor sanitary conditions). In such an area human sewage often lands up in streams and dams, and causes contamination of the water.

4.2.5.4 ACTIVITY 2:

4.2.5.5 TO ANALYSE A SITUATION IN ORDER TO DETERMINE WHETHER THE CONDITIONS ARE CONDUCIVE TO THE OUTBREAK OF A CHOLERA EPIDEMIC

4.2.5.6 [LO 1.7; 3.2]

Study the translated report from *Die Burger* of 31 December 2004 and:

- Have a group discussion on the likelihood of a cholera epidemic after this natural disaster.
- Offer suggestions on how such an epidemic could possibly be prevented in this case.
- Give feedback to the rest of the class and write a short report on your findings.

120 000 +

André Gouws and Reuters

CAPE TOWN - Warnings yesterday that yet another tsunami could hit the Asian coast, caused panic-stricken people in Sri Lanka, India and Thailand to flee into the hills while the death toll in the weekend's terrifying tsunami disaster rose to more than 120 000.

One of the South African victims, Mr Morris Isaacson (51) from Sea Point, was buried yesterday, but many families still do not know what has become of their loved ones. According to a report issued by the department of foreign affairs, there are still 14 South Africans who have been confirmed as missing in Thailand, and two in India.

Mrs Dilly Findlay (45) of Simon's Town is still missing in Thailand.

This is a disaster of such indescribable magnitude that it is difficult to understand all that has happened. The World Health Organisation yesterday reported in a statement that 5 million people in the disaster-stricken countries no longer had any access to basic necessities.

Yesterday's warning about a possible second tsunami followed after an earthquake occurred in the ocean along the coast of Sumatra, registering 5,2 on the Richter scale.

According to Mr Mario Adamo, who used to live in Durbanville but who now owns a restaurant in Phuket, the tsunami warnings were broadcast on television.

Total panic followed. Mr Adamo said that the authorities had evacuated everyone from the beach area, and many others had taken refuge on the surrounding hills. "The atmosphere here is ominous. The weather is strange and it seems as if it could rain at any moment." He explained that some people had been sitting on the hills since Sunday, and that they were still refusing to come down because they were afraid of what could happen again.

Adamo and his wife, Mrs Annette Adamo, have helped many South Africans to be reunited with their families, amongst others Dr Philip Finestone (42), and his four children, Sarah (9), Emma (7), Isabella (5) and Sophia (2). They arrived in South Africa yesterday on an emergency flight. Mrs Rickie Finestone (38) is seriously injured and has had to remain on Phuket where she is being treated, said Dr Finestone's brother, Mr Brett Finestone.

Adamo reported that as far as he knew, all the survivors had been taken from the island Phi Phi, where the destruction had been the worst of all. At present there were only soldiers who were burying the corpses.

According to Adamo the authorities have begun pumping the water out of a flooded underground supermarket on Phuket in order to remove the corpses.

Most of the fatalities were in Indonesia, where more than 80 000 people died. Thousands of corpses have been buried in mass graves. The air is filled with the stench of rotting corpses.

Approximately 5 000 foreigners – half of them from Sweden and Germany – are still missing, especially in Thailand. The Thai authorities have confirmed that 2 230 foreigners have died.

The true extent of the disaster will only be known in some weeks to come, since many isolated areas have not yet been reached.

From: *Die Burger*, 31 December 2004

- Typical symptoms in a cholera patient:

- nausea and vomiting;
- stomach cramps;
- leg cramps;
- diarrhoea and a very dry skin.

- Treatment:

Possible dehydration must be counteracted. Prepare a saline solution with treated water and administer it to the patient continuously.

- Prevention:

- avoid contact with water from dams, lakes or rivers in cholera areas;
- if one is uncertain of the quality of the water, one should boil it or add a small quantity of bleach to it;
- wash vegetables and fruit and/or cook it in treated water;
- always ensure that one's sanitary habits are sound.

4.2.5.7 ACTIVITY 3:

4.2.5.8 TO DESCRIBE A CONCEPT

4.2.5.9 [LO 3.2; 3;3]

- Briefly describe what you understand under the concept “sanitary habits”.

4.2.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

1.2 distinguishes between facts and opinions [works with sources];

1.3 categorises information [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

LO 3

EXPLORING ISSUES

The learner will be able to make informed decisions about social and environmental issues and problems.

We know this when the learner:

3.1 identifies challenges to societies and settlements, with a focus on the spread of diseases [identify the issue];

3.2 explains the factors that cause some people to be more at risk of disease than others [factors affecting the issue];

3.3 suggests the best way, from a range of alternatives, to reduce risks of disease [makes choices].

4.2.7 Memorandum

ACTIVITY 2

- Very good; wet; stagnant water; sewage systems destroyed; no fresh water
- Transporting fresh water; monitor symptoms; isolate cases; evacuate people from danger areas

ACTIVITY 3

- Bathroom activities
- Bodily waste (solid or fluid) removed and purified by means of established enclosed systems

4.3 Diseases: HIV/Aids[3]

4.3.1 GEOGRAPHY

4.3.2 Grade 5

4.3.3 HEALTH AND WELL-BEING

4.3.4 Module 34

4.3.5 DISEASES: HIV/AIDS

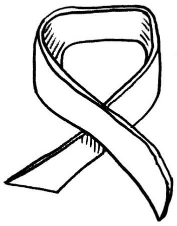

Figure 4.1

HIV / AIDS
Activity 1:
To define a concept
[LO 1.1]

- After a thorough group discussion, briefly define a definition for HIV as well as for Aids, so that the difference between the two is clear.

This disease has an impact on millions of people on our continent alone, as well as on people all over the world. The fact that there is still no cure for Aids makes it a greatly feared disease.

The HI virus causes the disease Aids
Acquired
Immune
Deficiency
Syndrome

- Origin and nature:The human body has a built-in immune system that protects it against disease and infection. The HI virus attacks this system and prevents it from functioning successfully. The virus is present in human bodily fluids. It weakens the immune system to such an extent that the body finds it difficult to combat diseases such as TB, pneumonia and diarrhoea. It is only through a blood test that one can determine whether someone has been infected with the virus.As is the case with many other diseases, Aids is spread more readily in densely populated areas, and particularly where people do not eat wholesome food. The HI virus can be transmitted from one person to the other in the following ways:

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[3] This content is available online at <http://cnx.org/content/m29683/1.1/>.

- When someone who is infected with the virus has unprotected sex (without a condom) with someone, and the semen or vaginal fluid mixes with that of the other person.
- When an infected person's blood mixes with someone else's blood. This can happen if infected blood is accidentally transfused, or if contaminated injection needles or razor blades are used.
- A pregnant woman who is infected with the virus can transmit it to her unborn child.

This dreaded disease has spread very rapidly since it was first diagnosed round about 1980.

Activity 2:
To represent statistics by means of a graph
[LO 1.1, 1.7]

- Use the following statistical information and compile a block graph to represent the increase in the cases of HIV between 1990 and 1999.

Year	Percentage of the total population that are estimated to have been infected with HIV
1990	0,7%
1991	1,7%
1992	2,2%
1993	4%
1994	7,6%
1995	10,4%
1996	14,2%
1997	17%
1998	22,8%
1999	22,4%

Table 4.2

(Remember to provide clear axis calibration and labels as well as an explanatory caption for your graph.)

- Typical symptom:

- a weakened body that is highly susceptible to other diseases.

- Treatment:

Although Aids is still an incurable disease, sufferers can take certain medication to alleviate the symptoms. However, this type of medication is very expensive.

- Breakthrough:

The HI virus is a very cunning rogue that penetrates the body silently and then assumes the characteristics of the other cells of the body. In this way it can move around in the body and infect the human immunity cells without being detected. Researchers at the Pasteur Institute in France believe that they are very close to a breakthrough.

Read the newspaper report printed below and have a group discussion on its contents.

breakthrough in fight against aids may be close

(SAPA-AFP)

In what is seen as a possible breakthrough in the fight against HIV/Aids, antibodies have been stimulated that could possibly prevent the HI virus from infecting human immunity cells, French researchers disclosed recently.

This finding "has opened interesting possibilities for the development of a vaccine", researchers at the Pasteur Institute, the national centre for scientific research in France, said in a statement.

Antibodies are the advance guard in the human body's defence system. They are designed to "mark" a virus or bacterium so that it can be destroyed by immunity cells. Many vaccines, such as those against 'flu, polio and measles, are based on antibodies and use a part of the virus to teach the immune system to identify the invading virus in future. - (Sapa-AFP)

From: Die Burger, 01 December 2004

- Aids and the South African economy:

South Africa is one of the countries with the highest HIV infection rate (the rate at which the virus spreads) in the world. Statistics show that approximately 10 million South Africans could die of Aids-related diseases within the following 10 years. Most of these victims will be younger than 50 years of age.

These figures indicate that the economy of our country will suffer as a result of the situation surrounding this problem.

Activity 3:

To discuss a statement critically and draw conclusions

[LO 1.7]

Debate the statement given at the bottom of page 12 and refer specifically to the following aspects. Then write a short paragraph about the effect that AIDS has on the economy of a country.

- health care (depletion of resources)
- substitution of personnel/training

HELP IN THE STRUGGLE AGAINST HIV

Many organisations worldwide focus on creating awareness of how the virus functions and spreads, as well as on reaching out to victims.

Read the newspaper report printed below on the role of the Mandela Foundation in combating Aids. Make a list of other interest groups / organisations you know of that play a vital role in combating this disease.

help in battle against virus, asks sexwale

Waldimar Pelser

If more than 5 million of our country's people die of Aids-related causes, we must give new life to the message that we have to combat the HI virus.

This was the recent message from the businessman, Mr Tokyo Sexwale.

In his position as trustee of the Nelson Mandela Foundation, Sexwale expressed his wholehearted support for the foundation's attempt to persuade thousands of South African volunteers to take up arms in the fight against HIV/Aids.

In this latest campaign under the auspices of past president Nelson Mandela's 46664 prison number, a call centre has been established where "ordinary men and women" can volunteer their time and skills in the fight against Aids. The telephone number is 08000 46664 and the calls are free. Sexwale emphasised that the problem with HIV/Aids is related to behaviour.

"The government has a huge role to play, but it is not alone in the struggle. We are asking for more hands, in the name of Nelson Mandela," he said. According to the foundation's Mr John Samuel, the call centre will refer volunteers to organisations who need more assistance.

The foundation will distribute pamphlets that give details of its projects in taxis, banks and supermarkets. Business giants such as Absa, Old Mutual, Anglo American, BMW and Spar have become involved.

The actor Brad Pitt will appear in a television advertisement that will be screened round about World Aids Day (1 December) to promote the 46664 project.

(Translated from Die Burger, 1 Dec. 2004.)

4.3.6 Assessment

LO 1

GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

We know this when the learner:

1.1 with guidance, selects and uses sources of useful geographical information [finds sources];

1.2 distinguishes between facts and opinions [works with sources];

1.3 categorises information [works with sources];

1.4 uses an index to find places on global atlas maps [works with sources];

1.6 identifies and explores possible solutions to problems [answers the question];

1.7 demonstrates knowledge and under-standing of the issue through projects, discussion, debate and charts [communicates the answer].

4.3.7 Memorandum

ACTIVITY 1

HIV: virus

Illness caused by HIV virus

ACTIVITY 3

Many people ill – in need of health care

Government must supply resources

Many trained employees die

Companies must replace them – train new staff members

Fewer employees remain – lower production

Fewer resources (money) for other needs such as education, houses, etc.

4.4 Disease in the workplace[4]

4.4.1 GEOGRAPHY

4.4.2 Grade 5

4.4.3 HEALTH AND WELL-BEING

4.4.4 Module 35

4.4.5 DISEASES AND THE WORKPLACE

A. Industries and industrial areas

South Africa is a reasonably prosperous country, especially if measured against African standards. An investigation into the prevalence of **minerals** and raw materials that are derived from the **fishing industry, agriculture** and **forestry** will indicate that these are the **origins** of our prosperity.

The products of our mining industry, and the raw materials referred to above, are processed in factories in order to add value to primary products and in the process, ultimately to create prosperity in the country. The numerous work opportunities that are created in factories, and the wages and salaries that are earned by factory staff, help to produce greater wealth among all sections of the population.

IS THERE MORE TO INDUSTRY THAN MERE ADVANTAGE?

In South Africa, as in most other countries in Africa, there is great unemployment. Any steps that are taken to create employment are welcomed. At one stage the Ceres group wanted to donate land to a fruit canning company in order to create jobs and increase productivity.

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[4] This content is available online at <http://cnx.org/content/m22353/1.1/>.

However, it would be foolish to do everything in one's power to utilise the country's raw materials as speedily as possible and to forget about the **people** and the **environment**.

In man's endeavours to make money out of mining and agriculture, he does a great deal of good, but some of his decisions do not take the best interests of the people and the environment into consideration. One frequently reads and hears about court cases that are made against governments and companies in order to call them to account for past wrongs.

The countries in eastern Europe that were under the rule of the USSR for about 40 years before they took control of their own affairs in 1990 are good examples of how a government can ruin a country. At a certain stage the smoke from thousands of factories in these countries contained so many harmful substances that the trees started to die. Effluent that was spilled into the Rhine, Europe's largest river, began destroying many kinds of plant and animal life in the early 1970s.

4.4.5.1 ACTIVITY 1:

4.4.5.2 TO MAKE DEDUCTIONS FROM A GRAPHIC REPRESENTATION

4.4.5.3 [LO 3.1; 3.3]

- Study the drawing and explain the good plan that was devised to prevent water pollution in this river:

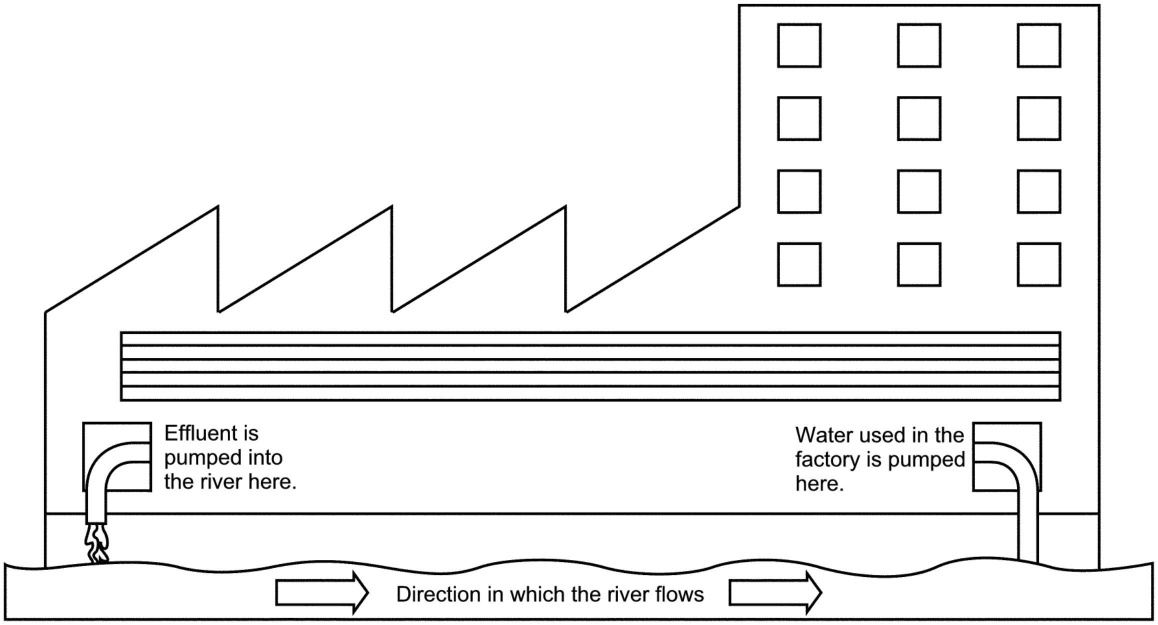
Effluent is pumped into the river here.
Water used in the factory is pumped here.
Direction in which the river flows

Figure 4.2

What was the plan that was devised?

B. The influence of industries

It is not only nature that is influenced by industries, but also the people who work in the industries.

4.4.5.4

4.4.5.5 ACTIVITY 2:

4.4.5.6 TO IDENTIFY AND ANALYSE PROBLEM SITUATIONS AND TO MAKE RECOMMENDATIONS FOR THEIR IMPROVEMENT

4.4.5.7 [LO 3.1; 3.3]

Study the newspaper reports and complete the questionnaire:

Report 1

Asbestosis victim blames unicity of dragging their feet

Helen Coetzee

CAPE TOWN - The unicity is dragging its feet while employees at the Athlone power station are suffering from lung cancer and asbestosis that they developed from inhaling asbestos fibre.

Translated from Die Burger, 26 June 2001

Report 2

Prieska speculates about who lie buried at the mine dump

PRIESKA - Between 200 and 250 unmarked graves have been found on a hill adjacent to a mine dump at the Glen Alan open-pit mine. At the same time the communities here have been preparing for a protest march against the effect of asbestos.

The protest march in the Northern Cape is intended to exert pressure on the British House of Lords to allow a court case involving the legal claims of 3 000 South African victims of asbestosis to be heard in Britain. They are claiming compensation from Cape, formerly the largest asbestos company in the world.

Translated from Die Burger, 26 December 1999

Report 3

Pollution real problem in Hong Kong

Hong Kong - This city was shrouded in thick smog once again on Thursday and pollution levels were dangerously high for the second day running. Notice boards along the roads registered “very high levels” and advised people with heart and lung problems to stay indoors.

On Wednesday the Air pollution Index, which measures pollution particles in the air, recorded a level of 170. This is the highest since March 2000 when the level went up to 174. Recent studies show that pollution has caused approximately 17 500 people to be hospitalised for treatment. - (Sapa-DPA)

Report 4

Peasants angry with mine companies

LIMA (Peru) - Approximately 1 000 peasants arrived in the city last Monday after a journey on foot that lasted seven days. They demanded government action against what they described as the “pollution or confiscation of land by large mining companies”.

“We are not against mining development, but we want local communities to be consulted in the matter,” said Mr Miguel Palacin, leader of the pressure group that is acting on behalf of 1 135 communities.

“The government is not at all interested in listening to our problems. The problem is that the mining companies pollute our land and our rivers, and undermine our health,” Palacin said. An official of the ministry of mines and energy said that the government would investigate the matter. - (Reuters)

1. Write a short sentence to summarise the problem that is addressed in each newspaper report.

2. Discuss the following statements:

The location of industries causes certain groups to be more exposed to unhealthy conditions than others.

Many beautiful pieces of furniture in wealthy homes may have made the world poorer.

The management of a mine has a responsibility towards its employees to identify and address the hazards to which they are exposed over a period of time.

3. Talk to your local doctor to find out exactly what kinds of disease are generally contracted by mineworkers.

4. Are there any precautionary measures that mining management can put in place in order to limit to the minimum the health risks run by mineworkers? (Class discussion)

C. The role of asbestos mines in asbestosis

Asbestos has been mined in South Africa since the beginning of the 20^{th} century. By 1910 five asbestos mines were operating in our country. Although other countries took precautions against the harmful effects caused by asbestos, South Africa initially did nothing to inform workers about the dangers of asbestos.

Even today there are mines where children play in polluted areas.

Asbestosis

- Origin and nature:It is a very serious lung disease found in people exposed to asbestos over a long period of time. The asbestos fibre is inhaled and then gather in the air-cells where it damages the walls of these cells. This results in poor gas exchanging in the lungs.A person suffering from asbestosis has a five times bigger likelihood to get lung cancer, than a healthy person.

- Signs and Symptoms of an asbestosis patient:A person suffering from asbestosis might display signs or symptoms at a late stage in his life for the first time - sometimes after ten or twenty years.Typical symptoms of asbestosis experienced by a patient:

- short of breath;
- find breathing difficult;
- frequent coughing;
- cough spasms experienced;
- tight chest;
- chest pains;
- patient weak and ill;
- poor sleeping habits;
- poor appetite.

- Treatment:

Unfortunately there is no cure for asbestosis. Doctors can only alleviate the symptoms.

A patient must avoid any contact with asbestos, and immediately refrain from smoking. The lung infection must be treated aggressively.

Asbestosis patients must avoid catching colds or influenza at all costs.

4.4.5.8 ACTIVITY 3:

4.4.5.9 TO IDENTIFY PROBLEMATIC SITUATIONS AS A GROUP AND SUGGEST POSSIBLE SOLUTIONS

4.4.5.10 [LO 3.1; 3.3]

- The following extract is from a speech by the deputy minister of Environmental Affairs and Tourism, Mr Mabudafhasi during the public trial of asbestos on 28 January 2003.

Asbestos has been mined in this country for many years. By 1910 five asbestos mines were operating in South Africa. By the 1950's, in other parts of the world such as Britain, companies have become aware that exposure to asbestos is harmful to human health and causes disease. In South Africa this realisation was not embraced so workers continued to remain ignorant of the true dangers of asbestos.

In South Africa the problem is more acute in the Limpopo Province and Northern Cape where reports indicate that children are forever playing on asbestos polluted and contaminated grounds. South Africa must come to term with the fact that we have an asbestos industry. The challenge is to ensure that all parts of the asbestos chain, from mining to ultimately removal and waste disposal, are handled in a responsible manner to avoid pollution that could be harmful to both the environment and the people.

Looking at the policy approach, the precautionary principle is a key part of South Africa's environmental management policy. This means that our approach to development and good environmental governance is that where any risks exists, we need to focus our energies on preventive action to counteract any possible harm that could result from such development action.

However, the overall government policy on asbestos is till in its infancy. It is against this policy background that I must announce my profound appreciation of the efforts undertaken by government departments to deal with identified sources of asbestos problem. The Department of Minerals and Energy (DME) has started to deal with the mine dumps, but the issue of secondary pollution into nearby villages still remains unresolved. It is of course unsatisfactory that the mining companies that made huge profits have simply disappeared and did not contribute to this effort.

Since 1996, the National Parliamentary Portfolio Committee on Environmental Affairs and Tourism took the initiative to investigate the impacts of asbestos within South Africa. The effects of asbestos are felt throughout the country, en every province, either through having mines or mine dumps in their provinces or through the use of asbestos products by consumers in general. Ex-workers and other sufferers of asbestos related diseases contracted due to environmental exposure are also not confined to one particular region but extend beyond our borders. http://www.pmg.org.za

Answer the following questions after you have discussed the contents of the speech as a group.

1. Does the government do enough to address the dangers of asbestos?
2. What is currently being done in South Africa to combat the negative effects of asbestos?
3. What else can be done to protect the inhabitants of the country against the dangers of asbestos?

4.4.6 Assessment

LO 3

EXPLORING ISSUES

The learner will be able to make informed decisions about social and environmental issues and problems.

We know this when the learner:

3.1 identifies challenges to societies and settlements, with a focus on the spread of diseases [identify the issue];

3.2 explains the factors that cause some people to be more at risk of disease than others [factors affecting the issue];

3.3 suggests the best way, from a range of alternatives, to reduce risks of disease [makes choices].

4.4.7 Memorandum

ACTIVITY 1

- The factory recycles the "polluted" water

ACTIVITY 2

1.

Report 1: Employee ill due to job environment
Report 2: Deathes sue to job environment covered up
Report 3: Pollution causes health deterioration
Report 4: Mines pollute soil and rivers

2.

- Low cost housing as well as mine houses situated close to industries – deterioration in health
- Deforestation – lack of oxygen
- People must be informed about dangers. It must be viable that management is taking counter measures.

ACTIVITY 3

1.

- Policy already in place, but not implemented everywhere with success.
- Mine management not sufficiently involved in fight against negative influences.

2.

- A policy has been established.
- Endeavours to act preventative
- Application of policy still in infant stage.

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